United States Department of Agriculture

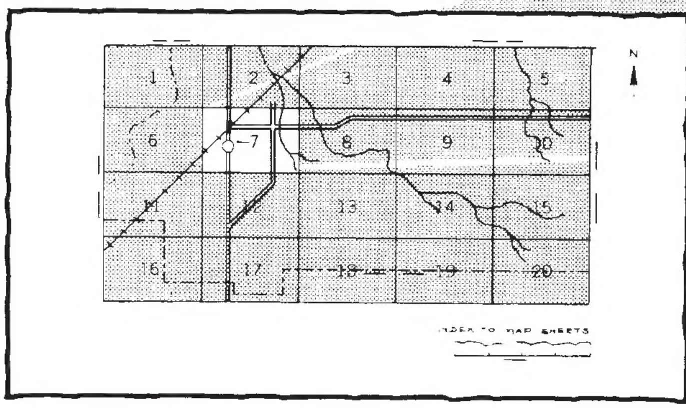
Soil Conservation Service

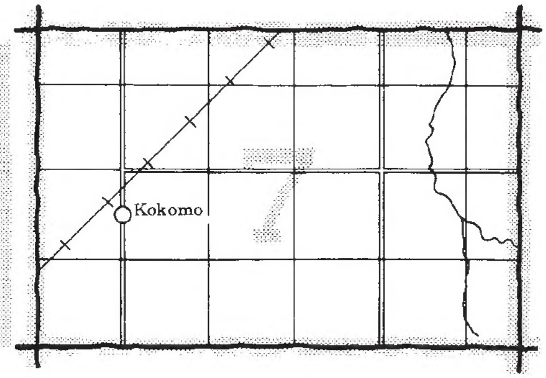
In Cooperation with Arkansas Agricultural Experiment Station

Soil Survey of Lafayette, Little River, and Miller Counties, Arkansas

HOW TO USE

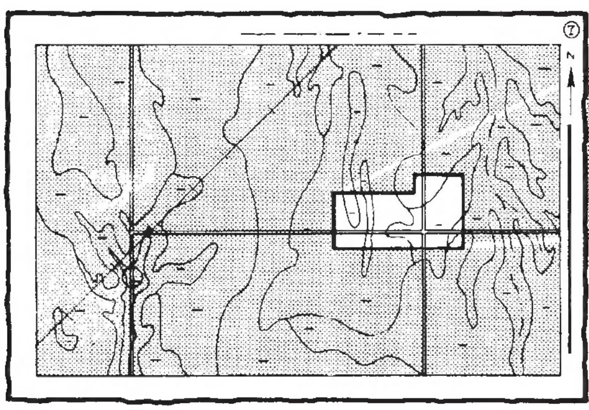
1. Locate your area of interest on the "Index to Map Sheets" (the last page of this publication).

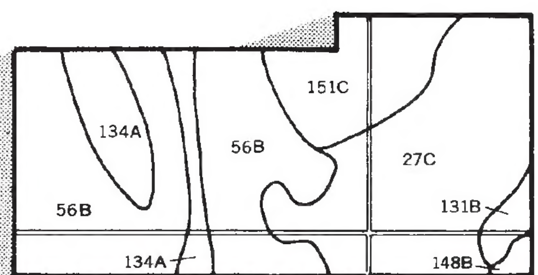




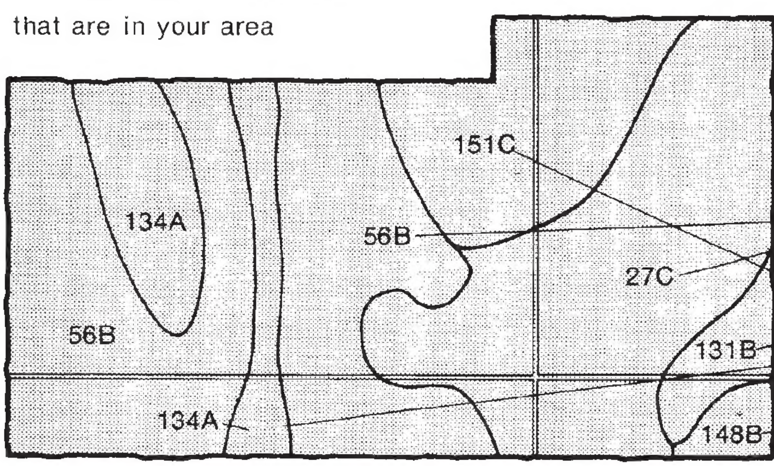
2. Note the number of the map sheet and turn to that sheet.

3. Locate your area of interest on the map sheet.





4. List the map unit symbols that are in your area

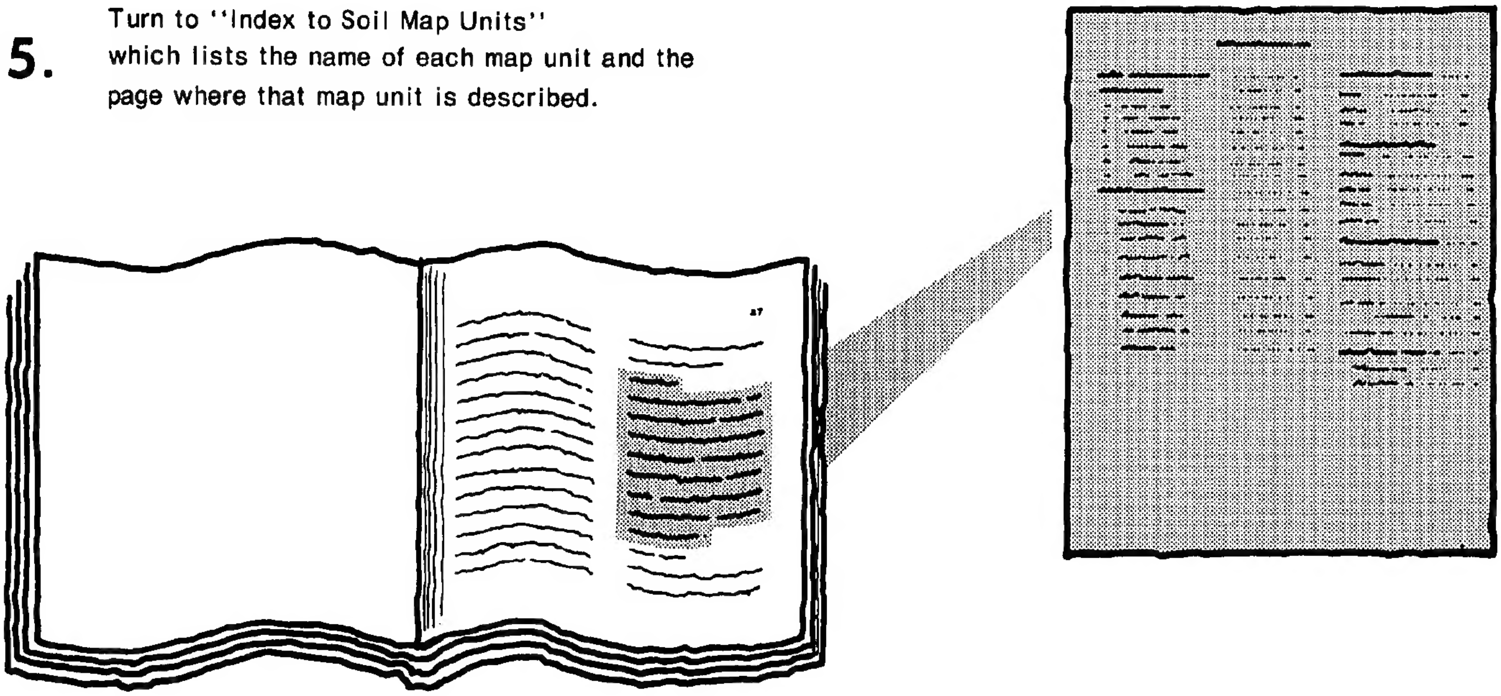


Symbols

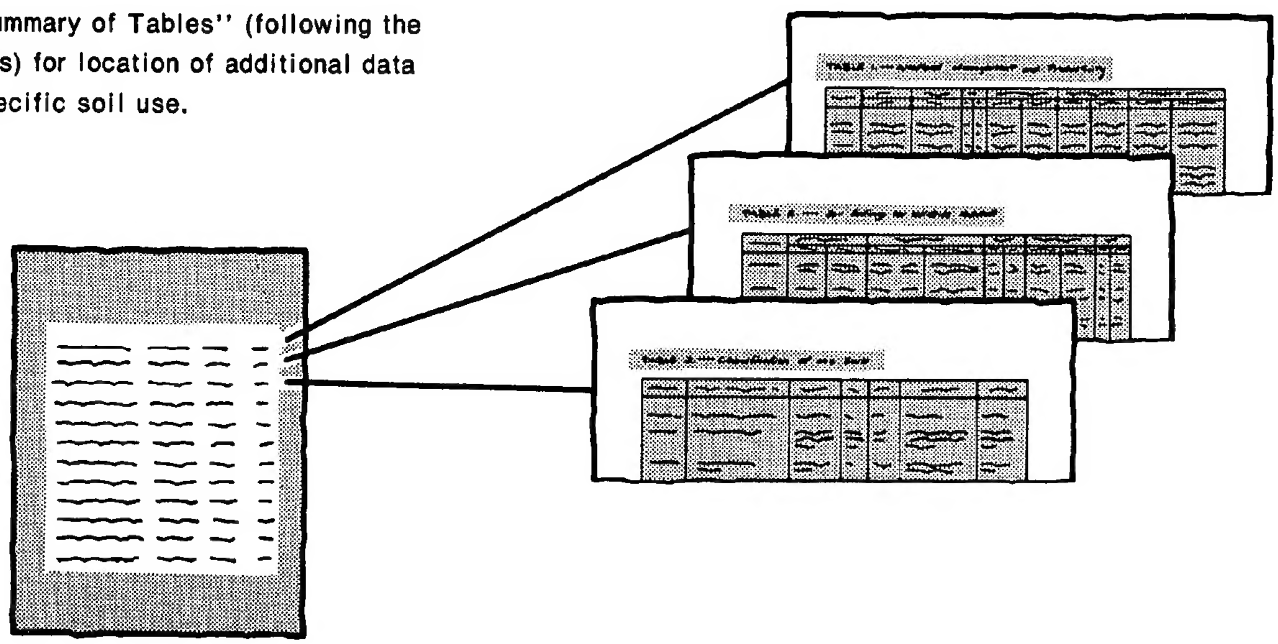
27C
56B
131B
134A
148B
151C

THIS SOIL SURVEY

5. Turn to "Index to Soil Map Units" which lists the name of each map unit and the page where that map unit is described.



6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.



7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; for specialists in wildlife management, waste disposal, or pollution control.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was completed in 1975-1981. Soil names and descriptions were approved in 1981. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1981. This survey was made cooperatively by the Soil Conservation Service and the Arkansas Agricultural Experiment Station. It is part of the technical assistance furnished to the Lafayette Conservation District, Little River Conservation District, and Miller County Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Cover: Young rice on Perry clay, 0 to 1 percent slopes. This soil is well suited to rice production.

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Soil Series

Issued March 1984

Index to Map Units

Summary of Tables

Foreword

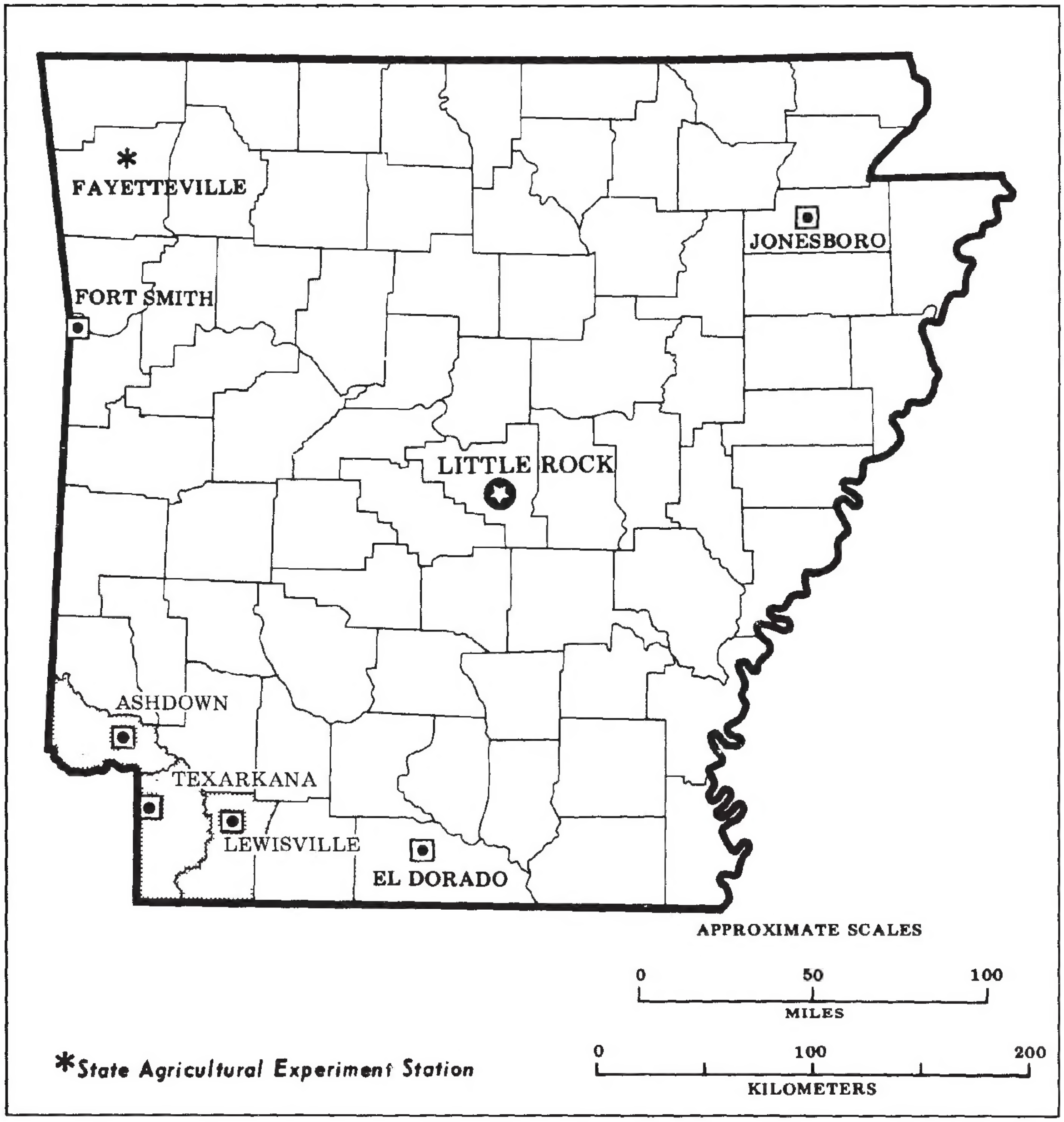
This soil survey contains information that can be used in land-planning programs in Lafayette, Little River, and Miller Counties, Arkansas. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Soil Conservation Service or the Cooperative Extension Service.

Jack C. Davis
State Conservationist
Soil Conservation Service



Location of Lafayette, Little River, and Miller Counties, Arkansas

Soil Survey of
Lafayette, Little River, and Miller Counties, Arkansas

By Glen Laurent, Soil Conservation Service

Soils surveyed by Glen Laurent, Katherine Guion, David Howard, Sidney Lowrance,
Mose Minor, and Leodis Williams, Soil Conservation Service

United States Department of Agriculture, Soil Conservation Service
in cooperation with
Arkansas Agricultural Experiment Station

LAFAYETTE, LITTLE RIVER, AND MILLER COUNTIES are in the southwestern corner of Arkansas. These counties adjoin one another.

Lafayette County is roughly rectangular in shape. It is about 32 miles from north to south and about 17 miles from east to west. Lafayette County has a total area of about 352,640 acres, or about 551 square miles, including 18,176 acres of large bodies of water. The total land area is about 334,464 acres. The county is bounded on the north by Hempstead and Nevada Counties, on the east by Columbia County, on the south by Webster and Bossier Parishes, Louisiana, and on the west by Miller County.

In 1970, the population of Lafayette County was 10,018. Lewisville, which had a population of 1,653, is the county seat. Other important trading centers are Stamps, which had a population of 2,448; Bradley, which had a population of 706; and Buckner, which had a population of 392.

Little River County is roughly triangular in shape. It is about 37 miles from east to west and about 27 miles from north to south at its widest point on the west side of the county. Little River County has a total area of about 355,880 acres, or about 556 square miles, including 20,893 acres of large bodies of water. The total land area is about 334,987 acres. The total land area includes 899 acres in Bowie County, Texas, which was mapped north of the Red River, but it does not include 4,059 acres in Little River County, which lies south of the Red River. This area was mapped in the soil survey of Bowie County, Texas. The county is bounded on the north by Sevier County, on the north and east by Hempstead County, on the south by Miller County and Bowie County, Texas, and on the west by McCurtain County, Oklahoma.

In 1970, the population of Little River County was 11,194. Ashdown, which had a population of 3,522, is the county seat. Other important trading centers are Foreman, which had a population of 1,173; Winthrop, which had a population of 240; Wilton, which had a population of 427; and Ogden, which had a population of 286.

Miller County is roughly rectangular in shape. It is about 40 miles from north to south and about 20 miles from east to west. Miller County has a total area of about 410,880 acres or about 642 square miles, which includes 12,224 acres of large bodies of water. The total land area is about 398,656 acres. The county is bounded on the north by Little River and Hempstead Counties, on the east by Lafayette County, on the south by Caddo Parish, Louisiana, and on the west by Bowie and Cass Counties, Texas.

In 1970 the population of Miller County was 33,385. Texarkana, Arkansas, is the county seat. It had a population of 21,682. Other important trading centers are Garland, which had a population of 582 and Fouke, which had a population 506.

An older survey of Miller County was published in 1904 (*3*). The present survey, which updates the first survey, provides additional interpretative information, contains more detail, and has aerial photography.

General Nature of the Survey Area

This section describes, in a general way, how the land is used and, in more detail, farming, physiography and drainage, and climate in Lafayette, Little River, and Miller Counties. Statistics concerning farming are from the 1978 Census of Agriculture.

Farming

Settlers came to Lafayette, Little River, and Miller Counties in the early 1800's. Many of them came from other southern states, mainly the Carolinas, Georgia, Alabama, Kentucky, and Tennessee. When the settlers arrived, all three counties were mostly covered with forest. Because game was abundant, the new inhabitants did not seriously concern themselves with farming. Lumbering operations began around 1840. The first sawmill in Miller County was built at Brightstar, circa 1855. Today the timber industry is an important part of the economy in all three counties. A large acreage is managed for the production of pulpwood, poles, and sawlogs.

Cotton production was begun in the early 1840's and increased in importance into the early 1900's. Soybeans was introduced about 1950 and has since become a major crop in all three counties. At present, soybeans and rice are the main crops. Cotton, wheat, grain sorghum, and alfalfa are other important crops. Livestock production and poultry production have also increased in importance.

In 1978 about 33 percent of Lafayette County, 42 percent of Little River County, and about 46 percent of Miller County were farmed. The rest of the area consisted of extensive wooded tracts, cities, towns, and transportation and utility facilities. Farming has since become more general. Soybeans, cotton, rice, and other small grains are grown, and the raising of livestock, poultry, and truck crops are important farming activities.

Farms are decreasing in number in Lafayette and Little River Counties and increasing in number in Miller County. Between 1974 and 1978 the number of farms decreased from 331 to 300 in Lafayette County and from 432 to 424 in Little River County. In Miller County the number of farms increased from 474 to 535. During the same time the average farm size increased from 364 to 395 acres in Lafayette County but decreased from 372 to 351 acres in Little River County and from 376 to 350 acres in Miller County.

Most farms are small enough for the family to do most of the work. Outside labor may be hired during peak seasons. The larger farms are operated by laborers who are supervised by the owner, manager, or tenant. Tenants pay a fixed rent or a percentage of the crop for use of the land. Most of the land is farmed by operators who have sufficent modern equipment to farm efficiently. Most farmers fertilize according to the needs of the crop and use chemicals for weed control.

Physiography and Drainage

The geologic deposits at the surface of Lafayette, Little River, and Miller Counties, except for a small area in the west-central and northeastern part of Little River County, are unconsolidated sediment laid down by water. The west-central and northeastern part of Little River County are formations of chalk or marl.

Topographically, Lafayette, Little River, and Miller Counties can be divided into three main regions or land resource areas: the level to gently undulating bottom lands, the level to steeply sloping Coastal Plains, and the level to moderately steep Blackland Prairies.

The topography of the bottom lands ranges from broad flats to natural levees that border the rivers and abandoned stream channels. Local differences are generally less than 1 foot on the flats, but they range to 3 percent on side slopes of the natural levees. The major soils in this area are Billyhaw, Caspiana, Perry, Rilla, Severn, and Oklared soils.

The topography in the Coastal Plains ranges from broad flats to steeply sloping hills that have rounded crests and dendritic drainage patterns. Slopes range from 0 to 40 percent in this area. The major soils in this area are Sacul, Bowie, Smithdale, and Eylau soils on the uplands and Wrightsville, Acadia, and Louin soils on the broad flats.

The topography in the Blackland Prairies ranges from level flood plains to moderately steep hills that are highly erosive. The major soils in this area are Sumter, Oktibbeha, Trinity, and Demopolis soils.

The Red River is the dominant drainageway in Lafayette, Little River, and Miller Counties. It flows eastward along the Oklahoma-Texas State line into Arkansas. It then flows along the southern border of Little River County and the northern border of Miller County, and turns southward toward Louisiana along the eastern border of Miller County and the western border of Lafayette County.

Drainage in Lafayette County is from north to south through a system of natural drainageways. The major drainageways are Dorcheat Bayou on the east side of the county, Bodcau Creek through the center, and the Red River on the west side. Lake Erling inundates the Bodcau Creek flood plain in the southern part of the county.

Drainage in Little River County is through two rivers that flow in an easterly direction. The Red River, which flows along the southern border, drains the southern part of the county. The Little River, which flows south and east along the northern border, drains the northern part of the county. Little River flows into Red River at the eastern end of the county. Millwood Lake inundates part of the Little River flood plain.

Drainage in Miller County is generally through a system of natural and improved drainageways and connecting artificial channels. The Red River flows entirely around the northern and eastern sides of the county, but because of a levee system, all of the water in the northern two-thirds of the county drains into McKinney Bayou, which flows into Red River in the southern part of the county. The Sulphur River flows southeast across the southern part of the county and into Red River.

Climate

Prepared by the National Climatic Center, Asheville, North Carolina

Table 1 gives data on temperature and precipitation for the survey area as recorded at Texarkana, Arkansas, in the period 1951 to 1979. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter the average temperature is 47 degrees F, and the average daily minimum temperature is 37 degrees. The lowest temperature on record, which occurred at Texarkana on February 2, 1951, is -3 degrees. In summer the average temperature is 81 degrees, and the average daily maximum temperature is 91 degrees. The highest recorded temperature, which occurred on August 8, 1978, is 107 degrees.

Growing degree days are shown in table 3. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

Of the total annual precipitation 24 inches, or 50 percent, usually falls in April through September, which includes the growing season for most crops. In 2 years out of 10, the rainfall in April through September is less than 17 inches. The heaviest 1-day rainfall during the period of record was 5.75 inches at Texarkana on June 18, 1976. Thunderstorms occur on about 55 days each year, and most occur in summer.

Average seasonal snowfall is 2 inches. The greatest snow depth at any one time during the period of record was 7 inches. Very few days have as much as 1 inch of snow on the ground; however, this number varies greatly from year to year.

The average relative humidity in midafternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 85 percent. The sun shines 70 percent of the time possible in summer and 50 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 10-11 miles per hour, late in winter and early in spring.

Severe local storms, including tornadoes, strike occasionally in or near the area. They are short and cause variable and spotty damage. Every few years in summer or autumn, a tropical depression or remnant of a hurricane which has moved inland causes extremely heavy rains for 1 to 3 days.

How This Survey Was Made

This survey was made to provide information about the soils in the survey area. The information includes a description of the soils and their location and a discussion of the suitability, limitations, and management of the soils for specified uses. Soil scientists observed the steepness, length, and shape of slopes; the general pattern of drainage; the kinds of crops and native plants growing on the soils; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biologic activity.

The soils in the survey area occur in an orderly pattern that is related to the geology, the landforms, relief, climate, and the natural vegetation of the area. Each kind of soil is associated with a particular kind of landscape or with a segment of the landscape. By observing the soils in the survey area and relating their position to specific segments of the landscape, a soil scientist develops a concept, or model, of how the soils were formed. Thus, during mapping, this model enables the soil scientist to predict with considerable accuracy the kind of soil at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another, resulting in gradual changes in characteristics of the soil. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, acidity, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils

systematically. The system of taxonomic classification used in the United States is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the survey area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpreted the data from these analyses and tests as well as the field-observed characteristics and the soil properties. They analyzed these data in terms of expected behavior of the soils under different uses. Interpretations for all of the soils were field tested through observation of the soils in different uses under different levels of management. Some interpretations are modified to fit local conditions, and new interpretations sometimes are developed to meet local needs. Data were assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management were assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can state with a fairly high degree of probability that a given soil will have a high water table within certain depths in most years, but they cannot assure that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Map Unit Composition

A map unit delineation on a soil map represents an area dominated by one major kind of soil or an area dominated by several kinds of soil. A map unit is identified and named according to the taxonomic classification of the dominant soil or soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural objects. In common with other natural objects, they have a characteristic variability in their properties. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of soils of other taxonomic classes. Consequently, every map unit is made up of the soil or soils for which it is named and some soils that belong to other taxonomic classes. These latter soils are called inclusions or included soils.

Most included soils have properties and behavioral patterns similar to those of the dominant soil or soils in the map unit and do not affect use and management. These soils are called noncontrasting (similar) inclusions. They may or may not be mentioned in the map unit descriptions. Other included soils, however, have properties and behavior divergent enough to affect use and require different management. These soils are contrasting (dissimilar) inclusions. They generally occupy small areas and cannot be shown separately on the soil maps because of the scale used in mapping. The inclusions of contrasting soils are mentioned in the map unit descriptions. A few inclusions may not have been observed and consequently are not mentioned in the descriptions, especially where the soil pattern was so complex that it was impractical to identify all of the soils on the landscape.

The presence of inclusions in a map unit in no way diminishes the usefulness or accuracy of the soil data. The objective of soil mapping is not to delineate pure taxonomic classes of soils but rather to separate the landscape into segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans, but onsite investigation is needed to precisely define and locate the soil where intensive uses in small areas are planned.

General Soil Map Units

The general soil maps at the back of this publication show broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil maps is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil maps can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of their small scale, the maps are not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

The soils in the survey area vary widely in their suitability for major land uses. Soil suitability ratings are based on the practices commonly used in the survey area to overcome soil limitations. These ratings reflect the ease of overcoming the limitations. They also reflect the problems that will persist even if such practices are used.

Each map unit is rated for *cultivated crops, pasture, woodland, urban uses,* and *recreation areas.* Cultivated crops are those grown extensively in the survey area. Pasture crops are those grown for livestock forage production. Woodland refers to areas of native or introduced trees. Urban uses include residential, commercial, and industrial developments.

The general soil map units for Lafayette, Little River, and Miller Counties are described in the following pages.

Soil Descriptions for Lafayette County

1. Severn-Oklared

Deep, level to gently undulating, well drained, loamy soils that formed in silty and loamy alluvium; on flood plains of the Red River

These soils are in the western part of Lafayette County along the Red River. They are on level to gently undulating flood plains and low ridges on flood plains.

This map unit makes up about 11 percent of the county. It is about 53 percent Severn soils, 11 percent Oklared soils, and 36 percent soils of minor extent.

The Severn soils are on level to gently undulating flood plains. They have a surface layer of dark brown silt loam. The underlying material is stratified, reddish brown silt loam, very fine sandy loam, and fine sandy loam.

The Oklared soils are on low parallel ridges. They have a surface layer of brown fine sandy loam. The underlying material is stratified, reddish brown, light reddish brown, and pink fine sandy loam and loamy fine sand.

Of minor extent in this map unit are the well drained Rilla and Caspiana soils on natural levees at slightly higher elevations than Severn and Oklared soils. Also included are the somewhat poorly drained Billyhaw and Latanier soils on broad flats at lower elevations, and the well drained Kiomatia soils on flood plains.

Most of the soils in this map unit are used for cultivated crops or pasture. Most areas of woodland have been cleared. Erosion and occasional flooding are the main limitations of these soils for farming and most other uses.

The Severn and Oklared soils are well suited to cultivated crops and improved pasture. They are also well suited to woodland. Severn and Oklared soils are poorly suited to most urban uses because of rare to occasional flooding. In areas protected from flooding, however, these soils are well suited to most urban uses.

2. Perry-Billyhaw

Deep, level, poorly drained and somewhat poorly drained, clayey soils that formed in clayey alluvium; on bottom lands of the Red River

These soils are in the western part of Lafayette County. They are on broad flats and in slack-water areas that were backswamps of the Red River.

This map unit makes up about 14 percent of the county. It is about 50 percent Perry soils, 30 percent Billyhaw soils, and 20 percent soils of minor extent.

The poorly drained Perry soils are on concave landscapes. They have a surface layer of dark grayish brown, mottled clay. The upper part of the subsoil is dark gray, mottled clay, and the lower part is dark reddish brown, mottled clay. The underlying material is dark reddish brown and dark brown, mottled clay.

The somewhat poorly drained Billyhaw soils are on convex landscapes. They have a surface layer of dark brown clay. The subsurface layer is dark reddish brown

clay. The upper part of the subsoil is dark reddish brown, mottled clay, and the lower part is reddish brown, mottled clay.

Of minor extent in this map unit are the well drained Severn and Oklared soils on flood plains along the Red River, the well drained Caspiana and Rilla soils on natural levees at slightly higher elevations, the somewhat poorly drained Latanier soils in positions on the landscape similar to those of the Perry and Billyhaw soils, and the very poorly drained Yorktown soils in ponded, slack-water areas.

Most of the soils in this map unit are used for cultivated crops, but some areas are used for pasture. Most areas have been cleared and some kind of drainage system installed, but some areas are swampy and undrained. Wetness is the main limitation for farming. Flooding is an additional limitation in some areas.

Both Perry and Billyhaw soils range from well suited to poorly suited to cultivated crops and pasture. Flooding and wetness are the main limitations to use of these soils for farming. These soils are well suited to woodland; however, wetness is a severe limitation to use of equipment. Perry and Billyhaw soils are poorly suited to urban uses. Wetness, slow permeability, shrink-swell, low strength, and flooding are limitations that are difficult or impractical to overcome.

3. Rilla-Caspiana

Deep, level and gently undulating, well drained, loamy soils that formed in loamy and silty alluvium; on bottom lands of the Red River

These soils are in the western part of Lafayette County. They are on natural levees in the Red River bottom lands.

This map unit makes up about 4 percent of the county. It is about 50 percent Rilla soils, 30 percent Caspiana soils, and 20 percent soils of minor extent.

The Rilla soils are on level to gently undulating natural levees of former channels of the Red River. They have a surface layer of dark brown silt loam. The upper part of the subsoil is brown silt loam, and the lower part is reddish brown and yellowish red silt loam that has light yellowish brown silt coatings on ped faces. The underlying material is yellowish red silt loam that has thin strata of yellowish red silty clay loam.

The Caspiana soils are in positions on the landscape similar to those of the Rilla soils. They have a surface layer of dark brown and very dark grayish brown silt loam. The subsoil is brown silt loam and silty clay loam. The underlying material is stratified, yellowish red silt loam and silty clay loam.

Of minor extent in this map unit are the somewhat poorly drained Billyhaw and Latanier soils and poorly drained Perry soils on broad flats at lower elevations than the Rilla and Caspiana soils.

Most of the soils in this map unit are cleared and are used for cultivated crops. A few small areas are used for pasture. Erosion is the main limitation if these soils are used for farming.

The Rilla and Caspiana soils are well suited to cultivated crops, pasture, and woodland. Erosion is a slight to moderate hazard in some areas. These soils are only moderately suited to most urban uses because of wetness, moderate permeability, shrink-swell, and low strength. These limitations can usually be overcome.

4. Guyton

Deep, level, poorly drained, loamy soils that formed in silty alluvium; on flood plains of the Coastal Plains

These soils are in the north-central part of Lafayette County. They are on level flood plains of the Coastal Plains.

This map unit makes up about 9 percent of the county. It is about 80 percent Guyton soils and 20 percent soils of minor extent.

The Guyton soils are on level flood plains. They have a surface layer of dark grayish brown, mottled silt loam and a subsurface layer of gray, mottled silt loam. The upper part of the subsoil is gray, mottled silty clay loam, and the lower part is gray, mottled silt loam.

Of minor extent in this map unit are the poorly drained Amy soils and the well drained Quachita soils in positions on the landscape similar to those of the Guyton soils and the poorly drained Smithton soils at a slightly higher elevation.

Most of the soils in this map unit are in woodland. A few small areas have been cleared and are used for pasture. Frequent flooding is the main limitation of these soils for farming and most other uses.

The Guyton soils are not suited to cultivated crops and are poorly suited to pasture. They are well suited to woodland. Guyton soils are severely limited for most urban uses because of wetness, slow permeability, frequent flooding, and low strength. These limitations are usually difficult or impractical to overcome.

5. Sacul-Smithdale-Bowie

Deep, nearly level to steep, moderately well drained and well drained, loamy soils that formed in loamy and clayey deposits; on uplands of the Coastal Plains

These soils are in the northern and eastern parts of Lafayette County. They are on nearly level to steep uplands of the Coastal Plains.

This map unit makes up about 19 percent of the county. It is about 23 percent Sacul soils, 22 percent Smithdale soils, 16 percent Bowie soils, and 39 percent soils of minor extent.

The moderately well drained Sacul soils are on nearly level to steep uplands. They have a surface layer of dark grayish brown fine sandy loam and a subsurface layer of

yellowish brown fine sandy loam. The upper part of the subsoil is red silty clay, the middle part is red, mottled clay, and the lower part is mottled red, gray, and brown silty clay and silty clay loam. The underlying material is stratified, red, gray, and brown fine sandy loam and clay loam.

The well drained Smithdale soils are on gently sloping hillsides. They have a surface layer of yellowish brown fine sandy loam and a subsurface layer of brown fine sandy loam. The upper part of the subsoil is yellowish red or red sandy clay loam. The lower part is red fine sandy loam.

The moderately well drained Bowie soils are on nearly level to gently sloping hilltops and convex hillsides. They have a surface layer of brown fine sandy loam. The upper and middle parts of the subsoil are strong brown sandy clay loam, and the lower part is red sandy clay loam.

Of minor extent in this map unit are the well drained Briley, Ruston, and Saffel soils and the moderately well drained Eylau and Sawyer soils in positions on the landscape similar to those of the Sacul, Smithdale, and Bowie soils. Also included are the poorly drained Amy, Smithton, and Guyton soils on flood plains.

Most of the soils in this map unit are used for pasture or woodland. Slope and erosion are the main limitations of these soils for farming and most other uses.

The Sacul soils range from moderately suited to not suited to cultivated crops and are moderately suited to pasture. Bowie soils are moderately suited to well suited to cultivated crops. Smithdale soils are moderately suited to cultivated crops. Bowie and Smithdale soils are well suited to pasture. This map unit is well suited to woodland. Sacul soils are poorly suited to most urban uses because of slow permeability, shrink-swell, low strength, and slope. These limitations are often difficult or impractical to overcome. The Bowie and Smithdale soils are well suited to most urban uses. Permeability is a moderate limitation for Smithdale soils and a severe limitation for Bowie soils, but this limitation can usually be overcome.

6. Adaton

Deep, level, poorly drained, loamy soils that formed in silty alluvium; on low terraces of the Coastal Plains

These soils are in the east-central part of Lafayette County. They are on low terraces of the Coastal Plains.

This map unit makes up about 5 percent of the county. It is about 80 percent Adaton soils and 20 percent soils of minor extent.

The Adaton soils are on low terraces. They have a surface layer of grayish brown silt loam. The upper part of the subsoil is light gray, mottled silt loam, the middle part is light brownish gray, mottled silty clay loam, and the lower part is gray, mottled silty clay loam.

Of minor extent in this map unit are the poorly drained Wrightsville soils and somewhat poorly drained Acadia soils in positions on the landscape similar to those of the Adaton soils and the well drained Ruston soils at a higher elevation.

Most soils of this map unit are in woodland. Some small areas have been cleared and are used for cultivated crops or pasture. Wetness is the main limitation of these soils for farming and most other uses.

The Adaton soils are moderately suited to cultivated crops and pasture. They are well suited to woodland. Adaton soils are poorly suited to most urban uses because of wetness, slow permeability, and low strength. These limitations are generally difficult or impractical to overcome.

7. Gore-McKamie

Deep, nearly level to moderately steep, moderately well drained and well drained soils that formed in clayey alluvium; on terraces of the Coastal Plains

These soils are in the southern part of Lafayette County. They are on nearly level to moderately steep terraces of the Coastal Plains.

This map unit makes up about 5 percent of the county. It is about 40 percent Gore soils, 40 percent McKamie soils, and 20 percent soils of minor extent.

The moderately well drained Gore soils are on nearly level to gently sloping stream terraces. They have a surface layer of dark brown silt loam and a subsurface layer of pale brown silt loam. The upper part of the subsoil is yellowish red clay, the middle part is light brownish gray clay, and the lower part is red clay. The underlying material is yellowish red clay.

The well drained McKamie soils are on nearly level to moderately steep stream terraces. They have a surface layer of dark brown silt loam and a subsurface layer of yellowish brown silt loam. The subsoil is red and dark red clay and yellowish red silty clay loam. The underlying material is stratified, yellowish red silt loam and very fine sandy loam.

Of minor extent in this map unit are the somewhat poorly drained Acadia soils and poorly drained Wrightsville soils at lower elevations than Gore and McKamie soils and the moderately well drained Muskogee soils and well drained Morse and Woden soils on terraces.

Most of the soils in this map unit are in woodland. Slope and erosion are the main limitations of these soils for farming and most other uses.

The Gore and McKamie soils range from poorly suited to not suited to cultivated crops; from well suited to moderately suited to pasture; and are well suited to woodland. They are poorly suited to most urban uses because of very slow permeability, high shrink-swell, and low strength. These limitations are often difficult or impractical to overcome.

8. Woden-Kamie

Deep, level to moderately steep, well drained, loamy soils that formed in loamy sediment; on uplands of the Coastal Plains

These soils are in the southern part of Lafayette County. They are on stream terraces, hillsides, and hilltops of the Coastal Plains.

This map unit makes up about 3 percent of the county. It is about 64 percent Woden soils, 15 percent Kamie soils, and 21 percent soils of minor extent.

The Woden soils are on level to gently sloping stream terraces. They have a surface layer of dark brown fine sandy loam. The subsoil is yellowish red fine sandy loam that has few or common dark reddish brown mottles in the lower part.

The Kamie soils are on nearly level to moderately steep hilltops and hillsides. They have a surface layer of brown fine sandy loam and a subsurface layer of yellowish brown fine sandy loam. The upper part of the subsoil is yellowish red sandy clay loam, and the lower part is yellowish red sandy clay loam that has pockets of light yellowish brown, uncoated sand grains.

Of minor extent in this map unit are the poorly drained Adaton and Wrightsville soils and somewhat poorly drained Acadia soils at lower elevations than Woden and Kamie soils.

Most of the soils in this map unit are used for pasture or cultivated crops. A few areas have been planted to trees for woodland. Slope and erosion are the main limitations of these soils for farming and most other uses.

The Woden soils are well suited to moderately suited to cultivated crops and well suited to pasture. The Kamie soils range from well suited to not suited to cultivated crops and are well suited to moderately suited to pasture. The Woden and Kamie soils are well suited to woodland. These soils are well suited to most urban uses; however, slope, low strength, and moderate permeability are limitations for Kamie soils in some areas. These limitations can usually be overcome.

9. Wrightsville-Louin

Deep, level, poorly drained and somewhat poorly drained soils that formed in clayey alluvium; on broad flats of terraces

These soils are in the southern and central parts of Lafayette County. They are on broad flats of terraces.

This map unit makes up about 30 percent of the county. It is about 42 percent Wrightsville soils, 20 percent Louin soils, and 38 percent soils of minor extent.

The poorly drained Wrightsville soils are on broad flats of terraces. They have a surface layer of dark grayish brown and grayish brown silt loam and a subsurface layer of light gray silt loam mottled with yellowish brown. The upper part of the subsoil is light brownish gray silty clay, and the lower part is light brownish gray silty clay mottled in shades of red and yellow. The underlying material is yellowish red silty clay.

The somewhat poorly drained Louin soils are in positions on the landscape similar to those of Wrightsville soils. They have a surface layer of dark gray and gray silty clay loam. The upper part of the subsoil is light brownish gray, mottled clay, and the lower part is gray and light brownish gray, mottled clay.

Of minor extent in this map unit are the somewhat poorly drained Acadia soils and poorly drained Adaton soils on low terraces, the moderately well drained Forbing, Gore, and Muskogee soils on terraces, and the well drained McKamie and Woden soils on terraces.

Most of the soils in this map unit are in woodland. Some small areas have been cleared and are used for cultivated crops and pasture. Wetness is the main limitation of these soils for farming and most other uses.

The Wrightsville and Louin soils are moderately suited to cultivated crops and pasture and well suited to woodland. Wetness is the main limitation in the use of these soils. These soils are poorly suited to most urban uses because of wetness, very slow permeability, high shrink-swell, and low strength. These limitations are usually difficult or impractical to overcome.

Soil Descriptions for Little River County

1. Guyton-Sardis

Deep, level to gently undulating, poorly drained and somewhat poorly drained, loamy soils that formed in silty and loamy alluvium; on flood plains of the Coastal Plains

These soils are in the northern part of Little River County on flood plains.

This map unit makes up about 10 percent of the county. It is about 60 percent Guyton soils, 20 percent Sardis soils, and 20 percent soils of minor extent.

The poorly drained Guyton soils are at a slightly lower elevation than Sardis soils. They have a surface layer of dark grayish brown, mottled silt loam and a subsurface layer of gray, mottled silt loam. The upper part of the subsoil is gray, mottled silty clay loam, and the lower part and underlying material are gray, mottled silt loam.

The somewhat poorly drained Sardis soils are at a slightly higher elevation than Guyton soils. They have a surface layer of brown silt loam. The upper part of the subsoil is dark yellowish brown silt loam, and the lower part is yellowish brown, mottled silty clay loam. The underlying material is strong brown, mottled sandy clay loam.

Of minor extent in this map unit are the well drained Ouachita and Ochlockonee soils at slightly higher elevations than Guyton and Sardis soils and the poorly drained Adaton soils on low terraces.

Most of the soils in this map unit are used for pasture or woodland. Most areas of the level Guyton soils are in

woodland. The nearly level Sardis soils are in pasture, mixed hardwood, and pine. Wetness and the hazard of flooding are the main limitations of these soils for farming and most other uses.

The Guyton soils are not suited to cultivated crops. Sardis soils range from well suited to poorly suited to cultivated crops. Guyton soils are poorly suited to improved pasture, and Sardis soils are well suited to moderately suited to improved pasture. Both soils are well suited to woodland. Guyton and Sardis soils are poorly suited to most urban uses because of slow permeability, wetness, and flooding. These limitations are usually difficult or impractical to overcome.

2. Severn

Deep, level to gently undulating, well drained, loamy soils that formed in silty alluvium; on flood plains of the Red River

These soils are in the southern part of Little River County along the Red River. They are on level to gently undulating flood plains and low ridges on flood plains.

This map unit makes up about 10 percent of the county. It is about 56 percent Severn soils and 44 percent soils of minor extent.

The Severn soils are on nearly level to gently undulating flood plains. They have a surface layer of dark brown silt loam. The underlying material is stratified, reddish brown silt loam, very fine sandy loam, and fine sandy loam.

Of minor extent in this map unit are the well drained Oklared soils in positions on the landscape similar to those of Severn soils, and the Rilla and Caspiana soils on natural levees at slightly higher elevations. Also included are the somewhat poorly drained Billyhaw and Latanier soils on broad flats at lower elevations, the poorly drained Perry soils on broad flats at a lower elevation, and the well drained Kiomatia soils on flood plains.

Most of the soils in this map unit are used for cultivated crops or pasture. Most areas of woodland have been cleared. Erosion and occasional flooding are the main limitations of these soils for farming and most other uses.

The Severn soils are well suited to cultivated crops and improved pasture. They are also well suited to woodland. Severn soils are poorly suited to most urban uses because of rare to occasional flooding; in areas that are protected from flooding, however, these soils are well suited to most urban uses.

3. Billyhaw

Deep, level to gently undulating, somewhat poorly drained, clayey soils that formed in clayey alluvium; on bottom lands of the Red River

These soils are in the southern part of Little River County. They are on broad flats and in slack-water areas that were backswamps of the Red River.

This map unit makes up about 15 percent of the county. It is about 70 percent Billyhaw soils and 30 percent soils of minor extent.

The Billyhaw soils are on convex landscapes. They have a surface layer of dark brown clay, and a subsurface layer of dark reddish brown clay. The upper part of the subsoil is dark reddish brown, mottled clay, and the lower part is reddish brown, mottled clay.

Of minor extent in this map unit are the well drained Severn and Oklared soils on flood plains along the Red River and the well drained Caspiana and Rilla soils on natural levees at slightly higher elevations than Billyhaw soils. Also included are the somewhat poorly drained Latanier soils in positions on the landscape similar to those of Billyhaw soils, the poorly drained Perry soils on concave landscapes, and the very poorly drained Yorktown soils in ponded, slack-water areas.

Most of the soils in this map unit are used for cultivated crops, but some areas are used for pasture. Most areas have been cleared, and some kind of drainage system has been installed. Some areas, however, are swampy and undrained. Wetness is the main limitation for farming. Flooding is an additional limitation in some areas.

The Billyhaw soils range from well suited to poorly suited to cultivated crops and pasture. Flooding and wetness are the main limitations for farming. These soils are well suited to woodland; however, wetness is a severe limitation to use of equipment. Billyhaw soils are poorly suited to urban uses. Wetness, slow permeability, high shrink-swell, low strength, and flooding are limitations that are difficult or impractical to overcome.

4. Bowie-Sacul-Saffell

Deep, nearly level to moderately sloping, moderately well drained and well drained soils that formed in clayey, loamy, and gravelly deposits; on uplands of the Coastal Plains

These soils are in the western part of Little River County. They are on hilltops and hillsides of the Coastal Plains.

This map unit makes up about 7 percent of the county. It is about 28 percent Bowie soils, 19 percent Sacul soils, 17 percent Saffell soils, and 36 percent soils of minor extent.

The moderately well drained Bowie soils are on nearly level to gently sloping hilltops and convex hillsides. They have a surface layer of brown fine sandy loam. The upper and middle parts of the subsoil are strong brown sandy clay loam, and the lower part is red sandy clay loam.

The moderately well drained Sacul soils are on hilltops and hillsides. They have a surface layer of dark grayish

brown fine sandy loam and a subsurface layer of yellowish brown fine sandy loam. The upper part of the subsoil is red silty clay, the middle part is red, mottled clay, and the lower part is mottled red, gray, and brown silty clay and silty clay loam. The underlying material is stratified, red, gray, and brown fine sandy loam and clay loam.

The well drained Saffell soils are on hilltops and hillsides. They have a surface layer of dark yellowish brown gravelly fine sandy loam. The subsoil is yellowish brown and strong brown very gravelly fine sandy loam. The underlying material is yellowish red, mottled very gravelly sandy clay loam.

Of minor extent in this map unit are the moderately well drained Eylau and Harleston soils at slightly lower elevations than Bowie, Sacul, and Saffell soils; the somewhat poorly drained Felker soils and poorly drained Smithton soils on low terraces; and the somewhat poorly drained Sardis soils on flood plains.

Most of the soils in this map unit are in woodland or pasture. Mixed hardwood and pine are the dominant trees. Slope and the hazard of erosion are the main limitations of these soils for farming and most other uses.

The Bowie soils are moderately suited to well suited to cultivated crops, and the Sacul and Saffell soils are moderately suited to poorly suited to cultivated crops. These soils are well suited to moderately suited to pasture. The Bowie and Sacul soils are well suited, and the Saffell soils are moderately suited to woodland. Bowie soils are well suited to most urban uses, but moderately slow permeability is a severe limitation. Sacul soils are poorly suited to most urban uses because of low strength, high shrink-swell, and slow permeability. These limitations are often difficult or impractical to overcome. Saffell soils are well suited to moderately suited to most urban uses. Slope and the high gravel content are limitations, but these limitations can usually be overcome.

5. Sumter-Oktibbeha

Moderately deep and deep, gently sloping to moderately sloping, well drained and moderately well drained, loamy soils that formed in residuum from calcareous chalk and marl; on uplands of the Blackland Prairies

These soils are in the west-central part of Little River County. They are on gently sloping to moderately sloping uplands of the Blackland Prairies.

This map unit makes up about 4 percent of the county. It is about 30 percent Sumter soils, 28 percent Oktibbeha soils, and 42 percent soils of minor extent.

The well drained Sumter soils are on hillsides. They have a surface layer of grayish brown silty clay loam. The subsoil is pale olive, mottled silty clay loam. The underlying material is light gray, mottled, soft rippable chalk and marl.

The moderately well drained Oktibbeha soils are on hilltops and hillsides. They have a surface layer of grayish brown silt loam and a subsurface layer of dark brown silt loam. The upper part of the subsoil is mottled, strong brown silty clay loam, the middle part is yellowish red, mottled clay, and the lower part is mottled clay. The underlying material is soft rippable chalk and marl.

Of minor extent in this map unit are the deep, moderately well drained Houston soils in positions on the landscape similar to those of Sumter and Oktibbeha soils; the shallow, well drained Demopolis soils on eroded hillsides; and the somewhat poorly drained Catalpa and Trinity soils on low terraces and flood plains.

Most of the soils in this map unit are used for pasture or woodland. Most areas of the gently sloping to moderately sloping Sumter soils have been cleared and are in pasture or are idle. The Oktibbeha soils are mainly in mixed hardwood and pine, but some areas have been cleared and are used for pasture. Slope and severe erosion are the main limitations of these soils for farming and most other uses.

The Sumter soils are not suited to cultivated crops and are poorly suited to pasture. The Oktibbeha soils are poorly suited to not suited to cultivated crops and moderately suited to pasture. Sumter and Oktibbeha soils are well suited to moderately suited to woodland. The soils in this map unit are poorly suited to most urban uses because of slope, slow to very slow permeability, high shrink-swell, and low strength. These limitations are generally difficult or impractical to overcome.

6. Foley-Midland

Deep, level and nearly level, poorly drained, loamy soils that formed in silty and clayey sediment; on low terraces of the Coastal Plains

These soils are in the south-central part of Little River County. They are on low terraces of the Coastal Plains.

This map unit makes up about 4 percent of the county. It is about 39 percent Foley soils, 37 percent Midland soils, and 24 percent soils of minor extent.

The Foley soils are at a slightly higher elevation than Midland soils. They have a surface layer of dark grayish brown silt loam and a subsurface layer of light brownish gray silt loam. The upper part of the subsoil is grayish brown silt loam, the middle part is grayish brown and light brownish gray silty clay loam mottled with yellowish brown, and the lower part is light olive gray silty clay loam mottled with yellowish red.

The Midland soils are at a slightly lower elevation than Foley soils. They have a surface layer of dark grayish brown, mottled silty clay loam and a subsurface layer of gray, mottled silty clay loam. The upper part of the subsoil is dark gray, mottled silty clay, and the lower part and underlying material are light brownish gray, mottled silty clay.

Of minor extent in this map unit are the well drained Kamie soils at a slightly higher elevation than Foley and Midland soils, the poorly drained Wrightsville soils in positions similar to those of Foley and Midland soils, and the poorly drained Perry soils and somewhat poorly drained Billyhaw soils on broad flats at lower elevations.

Most of the soils in this map unit are in pasture or woodland, but some areas of the Foley and Midland soils are cultivated. These soils tend to be wet in winter and spring and droughty in summer.

The Foley and Midland soils are moderately suited to cultivated crops and pasture and are well suited to woodland. Wetness is a severe limitation to use of equipment during winter and spring. The Foley and Midland soils are poorly suited to urban uses because of wetness, slow permeability, shrink-swell, and low strength. These limitations are generally difficult or impractical to overcome.

7. Felker-Harleston

Deep, level and nearly level, somewhat poorly drained and moderately well drained, loamy soils that formed in loamy marine sediment; on uplands of the Coastal Plains

These soils are in the northern part of Little River County. They are on low terraces and toe slopes of the Coastal Plains.

This map unit makes up about 21 percent of the county. It is about 40 percent Felker soils, 25 percent Harleston soils, and 35 percent soils of minor extent.

The somewhat poorly drained Felker soils are on low terraces. They have a surface layer of dark grayish brown silt loam. The upper part of the subsoil is light yellowish brown, mottled silt loam, and the lower part is yellowish brown and light brownish gray, mottled silty clay loam.

The moderately well drained Harleston soils are on lower terraces and hillsides. They have a surface layer of dark grayish brown fine sandy loam. The upper part of the subsoil is yellowish brown fine sandy loam, the middle part is yellowish brown, mottled loam, and the lower part is mottled gray, yellowish brown, and red loam.

Of minor extent in this map unit are the well drained Ruston and Kamie soils and the moderately well drained Bowie soils at slightly higher elevations than Felker and Harleston soils and the poorly drained Wrightsville soils and somewhat poorly drained Acadia soils at slightly lower elevations.

Most of the soils in this map unit are in woodland. Some areas have been cleared and are used for pasture. Wetness and erosion are the main limitations of these soils for farming and most other uses.

The Felker and Harleston soils are well suited to cultivated crops. They are also well suited to pasture and woodland. Felker soils are poorly suited to most urban uses because of wetness, slow permeability, and low strength. These limitations are often difficult to overcome. The Harleston soils are moderately suited to urban uses. Wetness is a limitation, but this limitation can usually be overcome.

8. Kamie-McKamie

Deep, nearly level to moderately steep, well drained, loamy soils that formed in loamy and clayey, alluvial or marine sediment; on uplands and terraces of the Coastal Plains

These soils are in the central part of Little River County. They are on hilltops, hillsides, and terraces of the Coastal Plains.

This map unit makes up about 9 percent of the county. It is about 60 percent Kamie soils, 15 percent McKamie soils, and 25 percent soils of minor extent.

The Kamie soils are on hilltops and hillsides at a higher elevation than McKamie soils. They have a surface layer of brown fine sandy loam and a subsurface layer of yellowish brown fine sandy loam. The upper part of the subsoil is yellowish red sandy clay loam, and the lower part is yellowish red sandy clay loam that has pockets of light yellowish brown, uncoated sand grains.

The McKamie soils are on nearly level to moderately steep stream terraces. They have a surface layer of dark brown silt loam and a subsurface layer of yellowish brown silt loam. The subsoil is red and dark red clay and yellowish red silty clay. The underlying material is stratified, yellowish red silt loam and very fine sandy loam.

Of minor extent in this map unit are the moderately well drained Bowie, Eylau, Muskogee, and Harleston soils in positions on the landscape similar to those of the Kamie and McKamie soils and the poorly drained Wrightsville soils and somewhat poorly drained Acadia soils at lower elevations.

Most of the soils in this map unit are in pasture or woodland. Most areas of the nearly level to gently sloping Kamie soils have been cleared and are used for pasture or cultivated crops. The steeper slopes are in pasture or woodland. The nearly level to moderately steep McKamie soils are mostly in woodland. Slope and erosion are the main limitations of the Kamie and McKamie soils.

The Kamie soils range from well suited to not suited to cultivated crops and are well suited to moderately suited to pasture. The McKamie soils are poorly suited to not suited to cultivated crops and are moderately suited to pasture. Both Kamie and McKamie soils are well suited to woodland. Kamie soils are well suited to most urban uses. Slope and low strength are limitations in some areas, but these limitations can usually be overcome. McKamie soils are poorly suited to most urban uses because of very slow permeability, high shrink-swell, and low strength. These limitations are usually difficult or impractical to overcome.

9. Wrightsville-Acadia

Deep, level and nearly level, poorly drained and somewhat poorly drained, loamy soils that formed in loamy and clayey alluvial sediment; on low terraces and broad flats of the Coastal Plains

These soils are in the central and southeastern parts of Little River County. They are on low terraces and broad flats of the Coastal Plains.

This map unit makes up about 17 percent of the county. It is about 30 percent Wrightsville soils, 25 percent Acadia soils, and 45 percent soils of minor extent.

The poorly drained Wrightsville soils are on broad flats of terraces at a slightly lower elevation than Acadia soils. They have a surface layer of dark grayish brown silt loam and a subsurface layer of grayish brown and light gray silt loam mottled with yellowish brown. The subsoil is light brownish gray, mottled silty clay. The underlying material is yellowish red silty clay.

The somewhat poorly drained Acadia soils are on low terraces at a higher elevation than Wrightsville soils. They have a surface layer of dark brown silt loam and a subsurface layer of light yellowish brown silt loam. The upper part of the subsoil is brownish yellow, mottled silty clay loam, and the lower part is gray, mottled silty clay. The underlying material is light brownish gray, mottled clay.

Of minor extent in this map unit are the moderately well drained Forbing, Muskogee, Kamie, and Gore soils and the well drained McKamie soils on terraces at higher elevations than Wrightsville and Acadia soils and the poorly drained Adaton soils and somewhat poorly drained Louin soils in similar positions on the landscape.

Most of the soils in this map unit are in woodland. Some small areas, however, have been cleared and are used for cultivated crops and pasture. Wetness is the main limitation of these soils for farming and most other uses.

The Wrightsville and Acadia soils are moderately suited to cultivated crops and pasture and are well suited to woodland. These soils are poorly suited to most urban uses because of wetness, very slow permeability, high shrink-swell, and low strength. These limitations are usually difficult or impractical to overcome.

10. Kipling-Louin

Deep, level to gently sloping, somewhat poorly drained, loamy soils that formed in clayey sediment; on uplands and terraces of the Coastal Plains

These soils are in the western part of Little River County. They are on nearly level to gently sloping hilltops and hillsides and level, broad flat terraces of the Coastal Plains.

This map unit makes up about 3 percent of the county. It is about 45 percent Kipling soils, 35 percent Louin soils, and 20 percent soils of minor extent.

The Kipling soils are on hilltops and hillsides at a higher elevation than Louin soils. They have a surface layer of dark grayish brown silt loam. The upper part of the subsoil is mottled, yellowish brown silty clay loam and silty clay, and the lower part is red, gray, and brown, mottled silty clay and clay. The underlying material is mottled, light gray clay.

The Louin soils are on broad flats at a lower elevation than Kipling soils. They have a surface layer of dark gray and gray silty clay loam. The subsoil is light brownish gray and gray, mottled clay.

Of minor extent in this map unit are the moderately well drained Oktibbeha, Bowie, Eylau, and Sacul soils in positions on the landscape similar to those of the Kipling soils and the somewhat poorly drained Felker soils and moderately well drained Harleston soils at elevations between those of the Kipling and Louin soils.

Most of the soils in this map unit are in woodland. Some areas, however, have been cleared and are used for pasture or are idle. A few areas are cultivated. Erosion and wetness are the main limitations of these soils for farming and most other uses.

The Kipling and Louin soils are moderately suited to cultivated crops. Kipling soils are well suited, and Louin soils are moderately suited to pasture. Both soils are well suited to woodland. These soils are poorly suited to most urban uses because of slow permeability, high shrink-swell, low strength, and wetness. These limitations are usually difficult or impractical to overcome.

Soil Descriptions for Miller County

1. Severn-Kiomatia-Oklared

Deep, level to gently undulating, well drained, loamy soils that formed in silty, sandy, and loamy alluvium; on flood plains of the Red River

These soils are in the eastern and northern parts of Miller County along the Red River. They are on level to gently undulating flood plains, low terraces, and low ridges on flood plains.

This map unit makes up about 10 percent of the county. It is about 55 percent Severn soils, 11 percent Kiomatia soils, 9 percent Oklared soils, and 25 percent soils of minor extent.

The Severn soils are on level to gently undulating flood plains. They have a surface layer of dark brown silt loam. The underlying material is stratified, reddish brown silt loam, very fine sandy loam, and fine sandy loam.

The Kiomatia soils are on low lying terraces along the Red River. They have a surface layer of reddish brown loamy fine sand. The underlying material is stratified, brown, light brown, and reddish brown loamy very fine sand, loamy fine sand, loamy sand, and very fine sandy loam.

The Oklared soils are on low parallel ridges. They have a surface layer of brown fine sandy loam. The

underlying material is stratified, reddish brown, light reddish brown, and pink fine sandy loam and loamy fine sand.

Of minor extent in this map unit are the well drained Rilla and Caspiana soils on natural levees at slightly higher elevations than the Severn, Kiomatia, and Oklared soils, and the somewhat poorly drained Billyhaw and Latanier soils and poorly drained Perry soils on broad flats at lower elevations.

Most of the soils in this map unit are used for cultivated crops or pasture. Most areas of woodland have been cleared. Erosion and occasional and frequent flooding are the main limitations of these soils for farming and most other uses.

The Severn and Oklared soils are well suited to cultivated crops and improved pasture. Kiomatia soils are not suited to cultivated crops and are poorly suited to pasture. Severn, Kiomatia, and Oklared soils are well suited to woodland. Severn and Oklared soils are poorly suited to most urban uses because of rare to occasional flooding. In areas protected from flooding, however, these soils are well suited to most urban uses. Kiomatia soils are severely limited for most urban uses because of frequent flooding. These limitations are usually difficult or impractical to overcome.

2. Billyhaw-Perry

Deep, level, somewhat poorly drained and poorly drained, clayey soils that formed in clayey alluvium; on bottom lands of the Red River

These soils are in the northern and eastern parts of Miller County. They are on broad flats and in slack-water areas that were backswamps of the Red River.

This map unit makes up about 25 percent of the county. It is about 46 percent Billyhaw soils, 43 percent Perry soils, and 11 percent soils of minor extent.

The somewhat poorly drained Billyhaw soils are on convex landscapes. They have a surface layer of dark brown clay and a subsurface layer of dark reddish brown clay. The upper part of the subsoil is dark reddish brown, mottled clay, and the lower part is reddish brown, mottled clay.

The poorly drained Perry soils are on concave landscapes. They have a surface layer of dark grayish brown, mottled clay. The upper part of the subsoil is dark gray, mottled clay, and the lower part is dark reddish brown, mottled clay. The underlying material is dark reddish brown and dark brown, mottled clay.

Of minor extent in this map unit are the well drained Severn and Oklared soils on flood plains along the Red River, the well drained Caspiana and Rilla soils on natural levees at slightly higher elevations than Billyhaw and Perry soils, the somewhat poorly drained Latanier soils in similar positions on the landscape, and the very poorly drained Yorktown soils in ponded, slack-water areas.

Most of the soils in this map unit are used for cultivated crops, but some areas are used for pasture. Most areas have been cleared and some kind of drainage system installed, but some areas are swampy and undrained. Wetness is the main limitation for farming. Flooding is an additional limitation in some areas.

The Billyhaw soils range from well suited to poorly suited to cultivated crops and are well suited to moderately suited to pasture. The Perry soils range from well suited to poorly suited to cultivated crops and to pasture. Flooding and wetness are the main limitations in the use of these soils for farming. Both Billyhaw and Perry soils are well suited to woodland. Wetness, however, is a severe limitation to use of equipment. Both soils are poorly suited to urban uses. Wetness, slow permeability, high shrink-swell, low strength, and flooding are limitations that are difficult or impractical to overcome.

3. Rilla-Caspiana

Deep, level and gently undulating, well drained, loamy soils that formed in loamy and silty alluvium; on bottom lands of the Red River

These soils are in the northern part of Miller County. They are on natural levees in the Red River bottom lands.

This map unit makes up about 5 percent of the county. It is about 55 percent Rilla soils, 25 percent Caspiana soils, and 20 percent soils of minor extent.

The Rilla soils are on natural levees of former channels of the Red River. They have a surface layer of dark brown silt loam. The upper part of the subsoil is brown silt loam, and the lower part is reddish brown and yellowish red silt loam that has light yellowish brown silt coatings on ped faces. The underlying material is yellowish red silt loam that has thin strata of yellowish red silty clay loam.

The Caspiana soils are in positions on the landscape similar to those of Rilla soils. They have a surface layer of dark brown and very dark grayish brown silt loam. The subsoil is brown silt loam and silty clay loam. The underlying material is stratified, yellowish red silt loam and silty clay loam.

Of minor extent in this map unit are the somewhat poorly drained Billyhaw and Latanier soils and poorly drained Perry soils on broad flats at lower elevations than the Rilla and Caspiana soils.

Most of the soils in this map unit have been cleared and are used for cultivated crops. A few small areas are used for pasture. Erosion is the main limitation of these soils for farming.

The Rilla and Caspiana soils are well suited to cultivated crops, pasture, and woodland. Erosion is a slight to moderate hazard in some areas. These soils are moderately suited to most urban uses. Wetness,

moderate permeability, moderate shrink-swell, and low strength are limitations, but these limitations can usually be overcome.

4. Gladewater-Perry

Deep, level, poorly drained, clayey soils that formed in clayey alluvium; on flood plains of the Sulphur River

These soils are in the southern part of Miller County. They are on level flood plains of the Sulphur River.

This map unit makes up about 4 percent of the county. It is about 69 percent Gladewater soils, 20 percent Perry soils, and 11 percent soils of minor extent.

The Gladewater soils are on level flood plains. They have a surface layer of black clay. The subsoil is gray, mottled clay. The underlying material is gray, mottled clay.

The Perry soils are in positions on the landscape similar to those of Gladewater soils. They have a surface layer of dark grayish brown, mottled clay. The upper part of the subsoil is dark gray, mottled clay, and the lower part is dark reddish brown, mottled clay. The underlying material is dark reddish brown and dark brown, mottled clay.

Of minor extent in this map unit are the somewhat poorly drained Billyhaw soils in a position on the landscape similar to those of the Gladewater and Perry soils.

Most of the soils in this map unit are in woodland. A few small areas are cleared and are cultivated. Frequent flooding is the main limitation of these soils for farming and most other uses.

The Gladewater soils are not suited to cultivated crops and are poorly suited to pasture. The Perry soils are poorly suited to cultivated crops and to pasture. Both soils are well suited to woodland. Gladewater and Perry soils are not suited to most urban uses because of flooding, wetness, very slow permeability, high shrink-swell, and low strength. These limitations are usually difficult or impractical to overcome.

5. Amy

Deep, level, poorly drained, loamy soils that formed in silty alluvium; on broad flats and flood plains of the Coastal Plains

These soils are in the southern and central parts of Miller County. They are on broad flats and flood plains of the Coastal Plains.

This map unit makes up about 6 percent of the county. It is about 90 percent Amy soils and 10 percent soils of minor extent.

The Amy soils are on broad flats and flood plains. They have a surface layer of grayish brown silt loam and a subsurface layer of gray and light brownish gray, mottled silt loam. The upper part of the subsoil is gray, mottled silty clay loam, and the lower part is gray, mottled silt loam.

Of minor extent in this map unit are the Smithton soils on terraces and the Sardis and Ouachita soils on flood plains.

Most of the soils in this map unit are in woodland. A few small areas have been cleared and are used for pasture. Frequent flooding and wetness are the main limitations for farming and most other uses.

The Amy soils range from moderately suited to not suited to cultivated crops and are moderately suited to poorly suited to pasture. Wetness and flooding are the main limitations. These soils are well suited to woodland. Amy soils are poorly suited to most urban uses because of wetness, slow permeability, frequent flooding, and low strength. These limitations are usually difficult or impractical to overcome.

6. Sacul-Eylau-Sawyer

Deep, nearly level to steep, moderately well drained, loamy soils that formed in loamy and clayey sediment; on uplands of the Coastal Plains

These soils are in the western part of Miller County. They are on hilltops and hillsides of the Coastal Plains.

This map unit makes up about 7 percent of the county. It is about 40 percent Sacul soils, 20 percent Eylau soils, 20 percent Sawyer soils, and 20 percent soils of minor extent.

The Sacul soils are on nearly level to steep hillsides and hilltops. They have a surface layer of dark grayish brown fine sandy loam and a subsurface layer of yellowish brown fine sandy loam. The upper part of the subsoil is red silty clay, the middle part is red, mottled clay, and the lower part is mottled red, gray, and brown silty clay and silty clay loam. The underlying material is stratified, red, gray, and brown fine sandy loam and clay loam.

The Eylau soils are on nearly level and gently sloping hilltops and hillsides. They have a surface layer of yellowish brown fine sandy loam. The upper part of the subsoil is strong brown sandy clay loam, the middle part is yellowish brown sandy clay loam, and the lower part is mottled, yellowish brown and yellowish red sandy clay loam and loam.

The Sawyer soils are on nearly level to gently sloping hillsides and hilltops. They have a surface layer of dark grayish brown silt loam. The upper part of the subsoil is mottled, yellowish brown silt loam, the middle part is mottled, yellowish brown silty clay loam, and the lower part is gray, mottled clay and yellowish red, mottled clay.

Of minor extent in this map unit are the well drained Smithdale soils and the moderately well drained Bowie soils in positions on the landscape similar to those of Sacul, Eylau, and Sawyer soils. The poorly drained Amy soils on flood plains are also included.

Most of the soils in this map unit are in pasture or woodland. Slope and erosion are the main limitations of these soils for farming and most other uses.

The Sacul soils range from moderately suited to not suited to cultivated crops and from well suited to not suited to pasture. The Eylau and Sawyer soils are moderately suited to well suited to cultivated crops and well suited to pasture. All of these soils are well suited to woodland. The Sacul and Sawyer soils are poorly suited to most urban uses because of slow permeability, high shrink-swell, and low strength. These limitations are generally difficult to overcome. Eylau soils are moderately suited to most urban uses because of moderately slow permeability, wetness, and low strength.

7. Sacul-Bowie-Eylau

Deep, nearly level to steep, moderately well drained, loamy soils that formed in loamy and clayey sediment; on uplands of the Coastal Plains

These soils are in the southern and central parts of Miller County. They are on nearly level to steep uplands of the Coastal Plains.

This map unit makes up about 38 percent of the county. It is about 40 percent Sacul soils, 20 percent Bowie soils, 10 percent Eylau soils, and 30 percent soils of minor extent.

The nearly level to steeply sloping Sacul soils are on uplands. They have a surface layer of dark grayish brown fine sandy loam and a subsurface layer of yellowish brown fine sandy loam. The upper part of the subsoil is red silty clay, the middle part is red, mottled clay, and the lower part is mottled, red, gray, and brown silty clay and silty clay loam. The underlying material is stratified, red, gray, and brown clay loam and fine sandy loam.

The nearly level and gently sloping Bowie soils are on hilltops and convex hillsides. They have a surface layer of brown fine sandy loam. The upper and middle parts of the subsoil are strong brown sandy clay loam, and the lower part is red sandy clay loam.

The nearly level and gently sloping Eylau soils are on hilltops and hillsides. They have a surface layer of yellowish brown fine sandy loam. The upper part of the subsoil is strong brown sandy clay loam, the middle part is yellowish brown sandy clay loam, and the lower part is mottled, yellowish brown and yellowish red sandy clay loam and loam.

Of minor extent in this map unit are the well drained Briley, Ruston, Saffell, and Smithdale soils and the moderately well drained Harleston and Sawyer soils in positions on the landscape similar to those of the Sacul, Bowie, and Eylau soils. Also included are the poorly drained Amy soils on flood plains.

Most of the soils in this map unit are in pasture or woodland. Slope and erosion are the main limitations of these soils for farming and most other uses.

The Sacul soils range from moderately suited to not suited to cultivated crops and from well suited to not suited to pasture. Bowie and Eylau soils are moderately suited to well suited to cultivated crops and well suited to pasture. All of these soils are well suited to woodland. Sacul soils are poorly suited to most urban uses because of slow permeability, high shrink-swell, low strength, and slope. These limitations are generally difficult or impractical to overcome. Bowie soils are well suited to most urban uses, although the moderately slow permeability is a severe limitation. Eylau soils are moderately suited to most urban uses because of moderately slow permeability, wetness, and low strength.

8. Wrightsville-Muskogee

Deep, level to gently sloping, poorly drained and moderately well drained, loamy soils that formed in loamy and clayey alluvium; on terraces and broad flats of the Coastal Plains

These soils are in the central part of Miller County. They are on terraces and broad flats of the Coastal Plains.

This map unit makes up about 5 percent of the county. It is about 40 percent Wrightsville soils, 30 percent Muskogee soils, and 30 percent soils of minor extent.

The poorly drained Wrightsville soils are on broad flats of terraces at a slightly lower elevation than Muskogee soils. They have a surface layer of dark grayish brown silt loam and a subsurface layer of grayish brown and light gray silt loam mottled with yellowish brown. The subsoil is light brownish gray, mottled silty clay. The underlying material is yellowish red silty clay.

The moderately well drained Muskogee soils are at a slightly higher elevation than Wrightsville soils. They have a surface layer of dark brown silt loam and a subsurface layer of yellowish brown silt loam. The upper part of the subsoil is yellowish brown silt loam, the middle part is light brownish gray silty clay, and the lower part is red clay.

Of minor extent in this map unit are the moderately well drained Forbing and Gore soils and the well drained McKamie soils on terraces at elevations similar to those of Muskogee soils. Also included are the poorly drained Adaton soils and the somewhat poorly drained Louin soils in positions on the landscape similar to those of the Wrightsville soils.

Most of the soils in this map unit are in woodland. Some small areas have been cleared and are used for cultivated crops and pasture. Wetness and erosion are the main limitations of these soils for farming and most other uses.

The Wrightsville soils are moderately suited to cultivated crops and pasture. The Muskogee soils are well suited to moderately suited to cultivated crops and are well suited to pasture. Both soils are well suited to woodland. The Wrightsville and Muskogee soils are poorly suited to most urban uses because of wetness, very slow permeability, high shrink-swell, and low strength. These limitations are usually difficult or impractical to overcome.

Detailed Soil Map Units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under "Use and Management of the Soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying material, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Sacul fine sandy loam, 3 to 8 percent slopes, is one of several phases in the Sacul series.

Some map units are made up of two or more major soils. These map units are called soil complexes, or undifferentiated groups.

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Sacul-Urban land complex, 3 to 8 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils in a mapped area are not uniform. An area can be made up of only one of the major soils, or it can be made up of all of them. Ouachita and Ochlockonee soils, occasionally flooded, is an undifferentiated group in this survey area.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

The detailed soil map units for Lafayette, Little River, and Miller Counties are described in the following pages.

1—Acadia silt loam, 0 to 2 percent slopes. This deep, somewhat poorly drained, level to nearly level soil is on low terraces in the Coastal Plains. Individual areas range from 40 to 1,000 acres or more.

Typically, the surface layer is dark brown silt loam about 4 inches thick. The subsurface layer is light yellowish brown, mottled silt loam to a depth of about 14 inches. The upper part of the subsoil is brownish yellow, mottled silty clay loam to a depth of about 20 inches, and the lower part is gray, mottled silty clay to a depth of about 50 inches. The underlying material to a depth of 72 inches or more is light brownish gray, mottled clay.

This soil is moderate in natural fertility and low in organic matter content. Reaction ranges from very strongly acid to medium acid throughout. Permeability is very slow, and available water capacity is high. A perched water table is within 6 to 18 inches of the surface during winter and spring.

Included with this soil in mapping are small areas of Gore, Muskogee, and Wrightsville soils. Also included are soils that have reddish material below a depth of 40 inches but otherwise are similar to Acadia soils.

This Acadia soil is moderately suited to cultivated crops. Wetness is a moderate limitation, and surface drains are needed in some areas. Suitable crops are rice, grain sorghum, and soybeans. This soil is moderately suited to pasture. Wetness is a moderate

limitation during winter and spring. Suitable pasture plants are bahiagrass and common bermudagrass.

This soil is well suited to woodland, and it is mainly used for tree production. Adapted species are loblolly pine, sweetgum, and water oak. Wetness during winter and spring is a moderate limitation to use of equipment in managing and harvesting the tree crop, but this limitation can usually be overcome by using special equipment and by harvesting during the drier seasons.

This soil is poorly suited to most urban uses. Wetness and very slow permeability are severe limitations for septic tank absorption fields. Shrink-swell and wetness are severe limitations for dwellings, small commercial buildings, and local roads and streets. Low strength is an additional severe limitation for local roads and streets. These limitations are usually difficult to overcome.

This soil is in capability subclass IIIw and woodland suitability group 3w8.

2—Adaton silt loam, 0 to 1 percent slopes. This deep, poorly drained, level soil is on low terraces in the Coastal Plains. Individual areas range from 20 to 600 acres or more.

Typically, the surface layer is grayish brown, mottled silt loam about 7 inches thick. The upper part of the subsoil is light gray, mottled silt loam to a depth of about 39 inches, the middle part is light brownish gray, mottled silty clay loam to a depth of about 50 inches, and the lower part is gray, mottled silty clay loam to a depth of 72 inches or more.

This soil is moderate in natural fertility and low in organic matter content. Reaction is strongly acid or very strongly acid throughout. Permeability is slow, and available water capacity is high. An apparent high water table is within 6 inches of the surface during winter and spring.

Included with this soil in mapping are a few small areas of Acadia, Felker, Guyton, and Wrightsville soils. Also included are mounds of soil that are about 2 or 3 feet high and about 50 feet in diameter.

This Adaton soil is moderately suited to cultivated crops. Wetness is a severe limitation, and surface drains are needed in most areas. Suitable crops are grain sorghum, soybeans, and rice. This soil is moderately suited to pasture. Wetness is a moderate hazard during winter and spring. Adapted pasture plants are bermudagrass, tall fescue, and white clover.

This soil is well suited to woodland, and it is mainly used for tree production. Adapted species are loblolly pine, water oak, and sweetgum. Wetness is a severe limitation to use of equipment in woodland use and management, but this limitation usually can be overcome by using special equipment and by planting and harvesting during the drier seasons.

This soil is poorly suited to most urban uses. Wetness and slow permeability are severe limitations for septic tank absorption fields. Wetness is a severe limitation for dwellings, small commercial buildings, and local roads and streets. These limitations are difficult to overcome.

This soil is in capability subclass IIIw and woodland suitability group 2w9.

3—Amy silt loam, 0 to 1 percent slopes. This deep, poorly drained, level soil is on broad upland flats in the Coastal Plains. Individual areas range from 20 to 200 acres or more.

Typically, the surface layer is grayish brown silt loam about 5 inches thick. The subsurface layer is gray and light brownish gray, mottled silt loam to a depth of about 15 inches. The subsoil is gray, mottled silty clay loam and silt loam to a depth of about 66 inches. The underlying material to a depth of 90 inches or more is light brownish gray, mottled fine sandy loam.

This soil is low in natural fertility and organic matter content. Reaction is strongly acid or very strongly acid throughout. Permeability is slow, and available water capacity is high. A perched water table is within 12 inches of the surface during winter and early in spring.

Included with this soil in mapping are a few small areas of Felker, Harleston, and Smithton soils.

This Amy soil is moderately suited to cultivated crops. The main crops are soybeans and grain sorghum. Excess surface water is a severe limitation. Tillage operations are often delayed for several days after a rain, and drainage systems need to be installed in most areas. This soil is moderately suited to pasture. Adapted pasture plants are bermudagrass, bahiagrass, tall fescue, and white clover. Wetness from late in winter to early in spring is a severe limitation. Because livestock traffic can severely damage the pasture during the wet season, access of the livestock to supplemental feeding sites needs to be restricted.

This soil is well suited to loblolly pine and sweetgum, and it is used mainly for the commercial production of trees. Wetness is a severe limitation to use of equipment in managing and harvesting the tree crop, but this limitation can usually be overcome by planting and logging during the drier seasons.

This soil is poorly suited to most urban uses. Wetness is a severe limitation for dwellings, local roads and streets, and small commercial buildings. Low strength is an additional severe limitation for local roads and streets. Slow permeability and wetness are severe limitations for septic tank absorption fields. All of these limitations are usually difficult or impractical to overcome.

This soil is in capability subclass IIIw and woodland suitability group 2w9.

4—Amy silt loam, frequently flooded. This deep, level, poorly drained soil is on flood plains of local streams in the Coastal Plains. Slopes are 0 to 1 percent. This soil is subject to flooding 1 or more times each year. Individual areas range from about 10 to 1,000 acres or more.

Typically, the surface layer is grayish brown silt loam about 5 inches thick. The subsurface layer is gray and light brownish gray, mottled silt loam to a depth of about 15 inches. The subsoil is gray, mottled silty clay loam and silt loam to a depth of about 66 inches. The underlying material to a depth of 90 inches or more is light brownish gray, mottled fine sandy loam.

This soil is low in natural fertility and organic matter content. Permeability is slow, and available water capacity is high. Reaction is strongly acid or very strongly acid throughout. A perched water table is within 12 inches of the surface during winter and spring. Flooding is frequent and generally occurs between December and June.

Included with these soils in mapping are a few small areas of Ouachita, Sardis, and Smithton soils. Also included are areas of Amy soils that have variable surface textures.

This Amy soil is generally unsuited to most cultivated crops because of the hazard of frequent flooding. This hazard can be overcome only by major flood control measures and by drainage. In most years the soil is flooded from December to June. Crops that require a short growing season, such as soybeans, can be grown, but in some years flooding is likely to damage the crop. This soil is poorly suited to pasture and hayland. Adapted pasture plants are bermudagrass, bahiagrass, tall fescue, and white clover. Wetness and flooding are severe limitations during winter and spring. Livestock traffic severely damages the pastures during the wet season.

This soil is well suited to loblolly pine, sweetgum, green ash, and water oak. Woodland is the main use. Wetness and flooding limit the use of equipment in managing and harvesting the tree crop, but these limitations can be overcome by using special equipment and by logging during the drier seasons.

This soil is severely limited for most urban uses. Wetness and flooding are severe limitations for septic tank absorption fields, dwellings, small commercial buildings, and local roads and streets. Slow permeability is an additional severe limitation for septic tank absorption fields, and low strength is an additional severe limitation for local roads and streets.

This soil is in capability subclass Vw and woodland suitability group 2w9.

5—Billyhaw clay, 0 to 1 percent slopes. This deep, somewhat poorly drained, level soil is on broad flats of slack-water areas along the Red River and its former channels. Individual areas range from 20 to 1,000 acres or more.

Typically, the surface layer is dark brown and dark reddish brown clay about 26 inches thick. The upper part of the subsoil is dark reddish brown, mottled clay to a depth of about 68 inches, and the lower part is reddish brown, mottled clay to a depth of 72 inches or more.

This soil is high in natural fertility and moderate in organic matter content. Reaction ranges from slightly acid to mildly alkaline in the surface layer and from neutral to moderately alkaline in the subsoil. Permeability is very slow, and available water capacity is high. This soil shrinks and cracks when it is dry and expands and the cracks close when it is wet. The water table is seasonally high and is within 12 to 24 inches of the surface during winter and early in spring.

Included with this soil in mapping are small areas of Caspiana, Latanier, and Perry soils. Also included are small areas of soils that have a silt loam surface layer.

This Billyhaw soil is well suited to rice and soybeans, and it is mainly used for these crops. Grain sorghum is also grown (fig. 1). This soil is well suited to pasture and hayland. Wetness is a hazard during winter and early in spring. Livestock traffic severely damages the pasture during the wet season. Adapted pasture plants are bermudagrass and tall fescue. Farming operations are commonly delayed for a few days after a rain, and surface drains are needed. Seedbed preparation is difficult, and tilth is hard to maintain because of the high clay content in the surface layer. Clods form on the surface if the soil is plowed when wet.

This soil is well suited to woodland. Adapted species are green ash, cottonwood, and water oak. Wetness is a severe limitation to use of equipment in managing and harvesting the tree crop, but this limitation usually can be overcome by logging during the drier seasons.

This soil is poorly suited to most urban uses. Wetness, shrink-swell, and rare flooding are severe limitations for dwellings and small commercial buildings. Very slow permeability and wetness are severe limitations for septic tank absorption fields. Low strength, wetness, and shrink-swell are severe limitations for local roads and streets. All of these limitations are usually difficult or impractical to overcome.

This soil is in capability subclass IIw and woodland suitability group 2w6.

6—Billyhaw clay, gently undulating. This deep, somewhat poorly drained, gently undulating soil is on broad flats of slack-water areas along the Red River and its former channels. Slopes are 0 to 3 percent. Individual areas range from 40 to 500 acres.

Typically, the surface layer is dark brown and dark reddish brown clay about 26 inches thick. The upper part of the subsoil is dark reddish brown, mottled clay to a depth of about 68 inches, and the lower part is reddish brown, mottled clay to a depth of 72 inches or more.

This soil is high in natural fertility and moderate in organic matter content. Reaction ranges from slightly acid to mildly alkaline in the surface layer and from neutral to moderately alkaline in the subsoil. Permeability is very slow, and available water capacity is high. This soil shrinks and cracks when it is dry and expands and the cracks close when it is wet. The water table is

Figure 1.—Grain sorghum on Billyhaw clay, 0 to 1 percent slopes. Cracks are common in this soil.

seasonally high and is within 12 to 24 inches of the surface during winter and early in spring.

Included with this soil in mapping are small areas of Latanier and Perry soils.

This Billyhaw soil is well suited to cultivated row crops, and it is mainly used for cropland. Suitable crops are soybeans and grain sorghum. This soil is also well suited to pasture and hayland. Wetness is a hazard during winter and early in spring. Livestock traffic severely damages the pasture during the wet season. Adapted pasture plants are bermudagrass and tall fescue. Farming operations are commonly delayed for several days after a rain, and surface drains are needed. Preparation of a seedbed is difficult, and tilth is hard to maintain because of the high clay content in the surface layer. Clods form on the surface if the soil is plowed when wet.

This soil is well suited to woodland. Adapted species are green ash, cottonwood, and water oak. Wetness is a severe limitation to use of equipment in managing and harvesting the tree crop, but this limitation can usually be overcome by logging during the drier seasons.

This soil is poorly suited to most urban uses. Wetness, shrink-swell, and rare flooding are severe limitations for dwellings and small commercial buildings. Very slow permeability and wetness are severe limitations for septic tank absorption fields. Low strength, wetness, and shrink-swell are severe limitations for local roads and streets. All of these limitations are usually difficult or impractical to overcome.

This soil is in capability subclass IIw and woodland suitability group 2w6.

7—Billyhaw clay, 0 to 1 percent slopes, occasionally flooded. This deep, somewhat poorly drained, level soil is on broad flats of slack-water areas along the Red River and its former channels. Individual areas range from 20 to 400 acres or more.

Typically, the surface layer is dark brown and dark reddish brown clay about 26 inches thick. The upper part of the subsoil is dark reddish brown, mottled clay to a depth of about 68 inches, and the lower part is reddish brown, mottled clay to a depth of 72 inches or more.

This soil is high in natural fertility and moderate in organic matter content. Reaction ranges from slightly acid to mildly alkaline in the surface layer and from neutral to moderately alkaline in the subsoil. Permeability is very slow, and available water capacity is high. This soil shrinks and cracks when it is dry and expands and the cracks close when it is wet. The water table is seasonally high and is within 12 to 24 inches of the surface during winter and early in spring.

Included with this soil in mapping are a few small areas of Caspiana, Latanier, and Perry soils. Also included are small areas of soils that have a silt loam surface layer.

This Billyhaw soil is well suited to cultivated crops, and it is mainly used for cropland. Occasional flooding and wetness are moderate limitations. The principal crops are rice and soybeans. This soil is well suited to pasture and hayland. Wetness is a hazard during winter and early in spring. Livestock traffic severely damages the pasture during the wet season. Adapted pasture plants are bermudagrass and tall fescue. Occasional flooding and wetness are moderate limitations. Farming operations are commonly delayed for a few days after a rain, and surface drains are needed. Preparation of a seedbed is difficult, and tilth is hard to maintain because of the high clay content in the surface layer. Clods form on the surface if the soil is plowed when wet.

This soil is well suited to woodland. Adapted species are green ash, cottonwood, and water oak. Occasional flooding and wetness are severe limitations to use of equipment in managing and harvesting the tree crop, but these limitations can usually be overcome by logging during the drier seasons.

This soil is poorly suited to urban uses. Wetness, flooding, and high shrink-swell are severe limitations for dwellings and small commercial buildings. Flooding, wetness, and very slow permeability are severe limitations for septic tank filter fields. Low strength, shrink-swell potential, and flooding are severe limitations for local roads and streets. All of these limitations are usually difficult or impractical to overcome.

This soil is in capability subclass IIw and woodland suitability group 2w6.

8—Billyhaw clay, 0 to 1 percent slopes, frequently flooded. This deep, somewhat poorly drained, level soil is in low slack-water areas along the Red River and its former channels. It is subject to flooding one or more times every year. Individual areas range from 20 to more than 1,000 acres.

Typically, the surface layer is dark brown and dark reddish brown clay about 26 inches thick. The upper part of the subsoil is dark reddish brown, mottled clay to a depth of about 68 inches, and the lower part is reddish brown, mottled clay to a depth of 72 inches or more.

This soil is high in natural fertility and moderate in organic matter content. Reaction is neutral or mildly alkaline in the surface layer and ranges from neutral to moderately alkaline in the subsoil. Permeability is very slow, and available water capacity is high. This soil shrinks and cracks when it is dry and expands and the soil cracks close when it is wet. The water table is seasonally high and is within 12 to 24 inches of the surface during winter and early in spring.

Included with this soil in mapping are a few small areas of Gladewater, Latanier, and Perry soils. Also included are small areas of soils that have a silt loam surface layer.

This Billyhaw soil is poorly suited to row crops because of the hazard of frequent flooding. In most years it is flooded from December to June. Crops that require a short growing season, such as soybeans, can usually be grown, but in some years flooding may damage the crop. Grain sorghum can also be grown. This soil is moderately suited to pasture. Wetness and flooding are hazards during winter and early in spring. Livestock traffic severely damages the pasture during the wet season. Adapted pasture plants are bermudagrass and tall fescue. Farming operations are commonly delayed for a few days after a rain, and surface drains are needed. Preparation of a seedbed is difficult, and tilth is hard to maintain because of the high clay content in the surface layer. Clods form on the surface if the soil is plowed when wet.

This soil is well suited to woodland, and it is mainly used for tree production. Adapted species are green ash, cottonwood, and water oak. Wetness and frequent flooding are severe limitations to use of equipment in managing and harvesting the tree crop, but these limitations can usually be overcome by logging during the drier seasons.

This soil is poorly suited to urban uses. Wetness, flooding, and high shrink-swell are severe limitations for dwellings and small commercial buildings. Flooding, wetness, and very slow permeability are severe limitations for septic tank filter fields. Low strength, shrink-swell, and flooding are severe limitations for local roads and streets. All of these limitations are usually difficult or impractical to overcome.

This soil is in capability subclass IVw and woodland suitability group 2w6.

9—Bowie fine sandy loam, 1 to 3 percent slopes. This deep, moderately well drained, nearly level soil is on hilltops and convex toe slopes in the Coastal Plains. Individual areas range from about 20 to 600 acres or more.

Typically, the surface layer is brown fine sandy loam about 5 inches thick. The subsurface layer is yellowish brown fine sandy loam to a depth of 14 inches. The upper part of the subsoil is strong brown, mottled sandy clay loam to a depth of about 49 inches, and the lower part is yellowish brown, mottled sandy clay loam to a depth of 72 inches or more.

This soil is low in natural fertility and organic matter content. Reaction ranges from slightly acid to strongly acid in the surface layer and is strongly acid or very strongly acid in the subsoil. Permeability is moderately slow, and available water capacity is high.

Included with this soil in mapping are a few small areas of Eylau, Ruston, and Sacul soils, and areas of soils that have slopes of more than 3 percent. Also included are a few areas of soils that have more clay in the lower part of the subsoil but otherwise are similar to Bowie soils and areas of soils that do not have plinthite in the lower part of the subsoil.

This Bowie soil is well suited to cultivated crops. The main crops are soybeans and grain sorghum. Small grains, vegetable crops, and cotton are also grown. Runoff is slow to medium, and the hazard of erosion is moderate. Clean-tilled crops that leave large amounts of residue can be grown year after year if contour cultivation and good management are practiced. This soil is well suited to pasture and hayland, and it is mainly used for pasture and hay. Adapted pasture plants are bermudagrass, Pensacola bahiagrass, tall fescue, and crimson clover. There are no significant limitations for pasture and hayland use.

This soil is well suited to woodland. Adapted species are loblolly pine (fig. 2) and shortleaf pine. There are no significant limitations for woodland use or management.

Figure 2.—Young stand of loblolly pine on Bowie fine sandy loam, 1 to 3 percent slopes.

This soil is well suited to most urban uses. There are no significant limitations for dwellings, small commercial buildings, or local roads and streets. Moderately slow permeability is a severe limitation for septic tank filter fields, but this limitation can be partially overcome by proper design of the filter field.

This soil is in capability subclass IIe and woodland suitability group 2o1.

10—Bowie fine sandy loam, 3 to 8 percent slopes. This deep, moderately well drained, gently sloping soil is on hilltops and hillsides in the Coastal Plain. Individual areas range from about 10 to 100 acres or more.

Typically, the surface layer is brown fine sandy loam about 5 inches thick. The subsurface layer is yellowish brown fine sandy loam to a depth of 14 inches. The upper part of the subsoil is strong brown, mottled sandy clay loam to a depth of about 49 inches, and the lower part is yellowish brown, mottled sandy clay loam to a depth of 72 inches or more.

This soil is low in natural fertility and organic matter content. Reaction ranges from slightly acid to strongly acid in the surface layer and is strongly acid or very strongly acid in the subsoil. Permeability is moderately slow, and available water capacity is high.

Included with this soil in mapping are a few small areas of Eylau, Ruston, and Sacul soils. Also included are a few, small areas of eroded soils, a few areas of soils that have more clay in the lower part of the subsoil but otherwise are similar to the Bowie soils, and areas of soils that do not have plinthite in the lower part of the subsoil.

This Bowie soil is moderately suited to cultivated crops. The main cultivated crops are soybeans and grain sorghum. Small grains, vegetable crops, and cotton are also grown. Runoff is medium, and the hazard of erosion is severe. Clean-tilled crops that leave a large amount of residue can be grown on the less sloping areas of this soil if good management is practiced. Good management includes contour cultivation and terracing of the long slopes. As slope gradient and length of slope increases, more intensive management will be needed. This soil is well suited to pasture and hayland. Adapted pasture plants are bermudagrass, Pensacola bahiagrass, tall fescue, and crimson clover. There are no significant limitations for pasture and hayland use.

This soil is well suited to woodland, and it is mainly used for tree production. Adapted species are loblolly pine and shortleaf pine. There are no significant limitations for woodland use or management.

This soil is well suited or moderately suited to most urban uses. There are no significant limitations for dwellings and local roads and streets. Moderately slow permeability is a severe limitation for septic tank filter fields, but this limitation can be partially overcome by proper design. Slope is a moderate limitation for small commercial buildings, but this limitation can usually be overcome by proper engineering design.

This soil is in capability subclass IIIe and woodland suitability group 2o1.

11—Briley loamy fine sand, 1 to 3 percent slopes. This deep, well drained, nearly level soil is on hilltops in the Coastal Plains. Individual areas range from 10 to 200 acres.

Typically, the surface layer is dark brown loamy fine sand about 6 inches thick. The subsurface layers are yellowish brown and strong brown loamy fine sand to a depth of 23 inches. The subsoil is yellowish red sandy clay loam to a depth of 72 inches.

This soil is low in natural fertility and organic matter content. Reaction ranges from very strongly acid to medium acid throughout. Permeability is moderate, and available water capacity is medium.

Included with this soil in mapping are a few small areas of Ruston soils and areas of soils that do not increase in content of clay in the lower horizons but otherwise are similar to the Briley soils.

This Briley soil is moderately suited to cultivated crops. Adapted crops are watermelons, (fig. 3) cantalopes, okra, and peas. Droughtiness is the main limitation. Wind erosion and water erosion are moderate hazards on clean-tilled areas. Crop rotation, stripcropping, and terracing help to reduce erosion. This soil is moderately suited to pasture. Adapted pasture plants are bahiagrass, hybrid bermudagrass, and sericea lespedeza. Droughtiness is the main limitation.

This soil is well suited to loblolly pine and shortleaf pine, and it is mainly used for tree production. Moderate seedling mortality is a management concern.

This soil is well suited to most urban uses. There are no significant limitations for septic tank absorption fields, dwellings, small commercial buildings, or local roads and streets.

This soil is in capability subclass IIIs and woodland suitability group 3s2.

12—Briley loamy fine sand, 3 to 8 percent slopes. This deep, well drained, gently sloping soil is on hilltops and hillsides in the Coastal Plains. Individual areas range from 10 to 200 acres.

Typically, the surface layer is dark brown loamy fine sand about 6 inches thick. The subsurface layers are yellowish brown and strong brown loamy fine sand to a depth of 23 inches. The subsoil is yellowish red sandy clay loam to a depth of 72 inches.

This soil is low in natural fertility and organic matter content. Reaction ranges from very strongly acid to medium acid throughout. Permeability is moderate, and available water capacity is medium.

Included with this soil in mapping are a few small areas of Ruston soils and areas of soils that do not

Figure 3.—Watermelons on Briley loamy fine sand, 1 to 3 percent slopes. Truck crops grow well on this soil.

increase in content of clay in the lower horizons but otherwise are similar to the Briley soils.

This Briley soil is moderately suited to cultivated crops. Adapted crops are watermelons, cantalopes, okra, and peas. Erosion and droughtiness are the main limitations. Wind erosion and water erosion are severe hazards on clean-tilled areas. Minimum tillage, stripcropping, the use of cover crops, and terracing help to reduce erosion. This soil is moderately suited to pasture. Adapted pasture plants are bahiagrass, hybrid bermudagrass, and sericea lespedeza. Droughtiness is the main limitation.

This soil is well suited to loblolly pine and shortleaf pine, and it is mainly used for tree production. Moderate seedling mortality is a management concern.

This soil is well suited to most urban uses. There are no significant limitations for septic tank absorption fields, dwellings, or local roads and streets. Slope is a moderate limitation for small commercial buildings, but this limitation can usually be overcome by proper engineering design.

This soil is in capability subclass IIIe and woodland suitability group 3s2.

13—Briley loamy fine sand, 8 to 12 percent slopes. This deep, well drained, moderately sloping soil is on hillsides in the Coastal Plains. Individual areas range from 20 to 200 acres.

Typically, the surface layer is dark brown loamy fine sand about 6 inches thick. The subsurface layers are

yellowish brown and strong brown loamy fine sand to a depth of 23 inches. The subsoil is yellowish red sandy clay loam to a depth of 72 inches.

This soil is low in natural fertility and organic matter content. Reaction ranges from very strongly acid to medium acid throughout. Permeability is moderate, and available water capacity is medium.

Included with this soil in mapping are a few small areas of Smithdale soils and areas of soils that do not increase in content of clay in the lower horizons but otherwise are similar to the Briley soils.

This Briley soil is poorly suited to cultivated crops. Erosion and droughtiness are the main limitations. This soil is moderately suited to pasture. Adapted pasture plants are bahiagrass, hybrid bermudagrass, and sericea lespedeza. Slope restricts the use of equipment, and the hazard of erosion is very severe. Droughtiness is an additional limitation.

This soil is well suited to loblolly pine and shortleaf pine, and it is mainly used for tree production. Use of equipment is moderately restricted on the more sloping areas. Moderate seedling mortality is a management concern.

This soil is moderately suited to most urban uses. Slope is a moderate limitation for septic tank absorption fields, dwellings, and local roads and streets and a severe limitation for small commercial buildings. Proper engineering design, however, can help to overcome this limitation.

This soil is in capability subclass IVe and woodland suitability group 3s2.

14—Caspiana silt loam, 0 to 1 percent slopes. This deep, well drained, level soil is on natural levees bordering former channels of the Red River. Individual areas range from about 20 to 1,000 acres or more.

Typically, the surface layer is dark brown silt loam about 6 inches thick and very dark grayish brown silt loam about 12 inches thick. The upper part of the subsoil is dark brown silt loam to a depth of 26 inches, and the middle and lower parts of the subsoil are dark brown silt loam or silty clay loam to a depth of 60 inches. The underlying material to a depth of 72 inches or more is stratified, yellowish red silt loam and silty clay loam.

This soil is high in natural fertility and moderate in organic matter content. Reaction ranges from medium acid to neutral in the surface layer. It ranges from medium acid to mildly alkaline in the upper part of the subsoil and from slightly acid to moderately alkaline in the lower part and underlying material. Permeability is moderate, and available water capacity is high.

Included with this soil in mapping are small areas of Rilla, Billyhaw, Perry, and Severn soils. Also included are a few small areas of soils that have slopes of as much as 3 percent, small areas of soils that have a lighter colored surface layer than Caspiana soils, and areas of soils that have gray mottles in the subsoil.

This Caspiana soil is well suited to row crops and small grains, and it is mainly used for crop production. This soil warms up early in spring and permits early planting. There are no significant limitations for cropland. The main crops are cotton (fig. 4) and soybeans. Grain sorghum and winter small grains are also grown. This soil is well suited to pasture and hayland. Adapted pasture plants are bermudagrass and tall fescue.

This soil is well suited to woodland. Adapted species are eastern cottonwood, sweetgum, and American sycamore. There are no significant limitations for woodland use or management.

This soil is moderately suited to most urban uses. Shrink-swell is a moderate limitation for dwellings and small commercial buildings. Low strength is a severe limitation for local roads and streets. Permeability and wetness are moderate limitations for septic tank filter fields. All of these limitations can usually be overcome by proper design and installation.

This soil is in capability class I and woodland suitability group 2o4.

15—Catalpa silty clay, 0 to 1 percent slopes. This deep, somewhat poorly drained, level soil is on flood plains and low terraces. Individual areas range from about 40 to 200 acres.

Typically, the surface layer is very dark gray silty clay about 14 inches thick. The upper part of the subsoil is dark grayish brown silty clay to a depth of about 57 inches, and the lower part is mottled, dark grayish brown and olive brown silty clay to a depth of 72 inches or more.

This soil is high in natural fertility and moderate in organic matter content. Reaction is mildly alkaline or moderately alkaline. This soil is calcareous throughout. Permeability is slow, and available water capacity is high. A seasonal high water table is within 18 to 24 inches of the surface during winter and early in spring.

Included with this soil in mapping are a few small areas of Houston soils and Trinity soils.

This Catalpa soil is well suited to cultivated crops. Suitable crops are cotton, rice, soybeans, and grain sorghum. This soil is also well suited to pasture, and it is mainly used for pasture. Adapted pasture plants are bermudagrass and tall fescue. Excess water is a moderate hazard. This soil can be cultivated only within a narrow range of moisture content. Farming operations may be delayed during the wet season. Seedbed preparation is difficult, and tilth is hard to maintain because of the clay content in the surface layer. Clods form on the surface if the soil is wet.

This soil is well suited to woodland. Adapted species are green ash, sweetgum, eastern cottonwood, and sycamore. Wetness is a moderate limitation to use of equipment in managing and harvesting the tree crop, but

Figure 4.—Irrigated cotton on Caspiana silt loam, 0 to 1 percent slopes. This soil is well suited to cotton production.

this limitation is usually overcome by logging during the dry seasons.

This soil is poorly suited to most urban uses. Wetness and slow permeability are severe limitations for septic tank absorption fields. Rare flooding and high shrink-swell are severe limitations for dwellings and small commercial buildings. Low strength and high shrink-swell are severe limitations for local roads and streets. All of these limitations are difficult or impractical to overcome.

This soil is in capability subclass IIw and woodland suitability group 1w5.

16—Demopolis silty clay loam, 3 to 20 percent slopes, eroded. This shallow, well drained, gently sloping to moderately steep soil is on hilltops and hillsides in the Blackland Prairies. Erosion has removed most of the topsoil in some areas, and rills, shallow gullies, and occasional deep gullies occur. Remnants of identifiable soil remain between the gullies. Individual areas range from about 10 to 100 acres or more.

Typically, the surface layer is dark grayish brown silty clay loam about 6 inches thick. Below this to a depth of 14 inches is grayish brown silty clay loam that is about 45 percent by volume chalk fragments. The underlying material is light gray, soft rippable chalk.

This soil is low in natural fertility and organic matter content. Reaction is moderately alkaline, and the soil is calcareous throughout. Permeability is moderately slow, and available water capacity is very low.

Included with this soil in mapping are a few areas of Houston, Oktibbeha, and Sumter soils. Also included are a few small gullied areas.

This Demopolis soil is unsuitable for cultivated crops. Runoff is rapid, and the hazard of erosion is very severe. Shallow rooting depth, gullies, and slope are limitations. This soil is poorly suited to pasture. Adapted pasture plants are hybrid bermudagrass, tall fescue, white clover, and sericea lespedeza. Minimum tillage, contour farming,

and the use of terraces help to reduce runoff and control erosion.

This soil is moderately suited to woodland. Eastern redcedar is a common tree. If this soil is disturbed by the planting and harvesting of trees, erosion can occur and gullies form which limit the use of equipment. Seedling mortality is severe because of very low available water capacity. These limitations are difficult to overcome.

This soil is poorly suited to urban uses. Depth to rock is a severe limitation for septic tank filter fields. Depth to rock and slope are moderate limitations for dwellings and local roads and streets. Slope is a severe limitation for small commercial buildings. These limitations are usually difficult or impractical to overcome.

This soil is in capability subclass VIe and woodland suitability group 4d3.

17—Eylau fine sandy loam, 1 to 3 percent slopes. This deep, moderately well drained, nearly level soil is on uplands in the Coastal Plains. Individual areas range from 10 to 300 acres.

Typically, the surface layer is yellowish brown fine sandy loam about 6 inches thick. The upper part of the subsoil is strong brown sandy clay loam to a depth of about 21 inches, the middle part is yellowish brown, mottled sandy clay loam to a depth of 39 inches, and the lower part is mottled yellowish brown and yellowish red sandy clay loam and loam to a depth of 72 inches or more.

This soil is low in natural fertility and organic matter content. Reaction ranges from slightly acid to strongly acid in the surface layer and is strongly acid or very strongly acid in the subsoil. Permeability is moderately slow, and available water capacity is medium. The lower part of the subsoil restricts the penetration of roots. This soil has a perched water table within 2 to 3 feet of the surface during winter and spring.

Included with this soil in mapping are a few small areas of Sawyer, Ruston, Bowie, and Amy soils. Also included are small areas of soils that have slopes of more than 3 percent.

This Eylau soil is well suited to farming. The main crops are truck crops and soybeans. Cotton, corn, and small grains are also grown. This soil is well suited to pasture. Adapted pasture plants are bermudagrass, bahiagrass, and tall fescue. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage, contour farming, and the use of cover crops, including grasses and legumes in the cropping system, help to reduce runoff and control erosion.

This soil is well suited to woodland, and it is mainly used for tree production. Adapted species are loblolly pine and shortleaf pine. There are no significant limitations for woodland use or management.

This soil is moderately suited to most urban uses. Wetness is a moderate limitation for dwellings and small commercial buildings. Low strength and wetness are moderate limitations for local roads and streets. Moderately slow permeability and wetness are severe limitations for septic tank absorption fields. All of these limitations can usually be overcome by proper engineering design.

This soil is in capability subclass IIe and woodland suitability group 3o1.

18—Eylau fine sandy loam, 3 to 5 percent slopes. This deep, moderately well drained, gently sloping soil is on uplands in the Coastal Plains. Individual areas range from 10 to 90 acres.

Typically, the surface layer is yellowish brown fine sandy loam about 6 inches thick. The upper part of the subsoil is strong brown sandy clay loam to a depth of about 21 inches, the middle part is yellowish brown, mottled sandy clay loam to a depth of 39 inches, and the lower part is mottled, yellowish brown and yellowish red sandy clay loam and loam to a depth of 72 inches or more.

This soil is low in natural fertility and organic matter content. Reaction ranges from slightly acid to strongly acid in the surface layer and is strongly acid or very strongly acid in the subsoil. Permeability is moderately slow, and available water capacity is medium. The lower part of the subsoil restricts the penetration of roots. This soil has a perched water table within 2 or 3 feet of the surface during winter and spring.

Included with this soil in mapping are a few small areas of Sawyer, Ruston, Bowie, and Amy soils. Also included are small areas of soils that have slopes of less than 3 percent.

This Eylau soil is moderately suited to farming. The main crops are truck crops and soybeans. Cotton, corn, and small grains are also grown. This soil is well suited to pasture. Adapted pasture plants are bermudagrass, bahiagrass, and tall fescue. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage, contour farming, and the use of cover crops, including grasses and legumes in the cropping system, help to reduce runoff and control erosion.

This soil is well suited to woodland, and it is mainly used for tree production. Adapted species are loblolly pine and shortleaf pine. There are no significant limitations for woodland use or management.

This soil is moderately suited to most urban uses. Wetness is a moderate limitation for dwellings and small commercial buildings. Slope is an additional moderate limitation for small commercial buildings. Low strength and wetness are moderate limitations for local roads and streets. Moderately slow permeability and wetness are severe limitations for septic tank absorption fields. All of these limitations can usually be overcome by proper engineering design.

This soil is in capability subclass IIIe and woodland suitability group 3o1.

19—Eylau-Urban land complex, 1 to 3 percent slopes. This deep, moderately well drained, nearly level complex consists of Eylau soils and areas of soils modified by urban development. The developed areas are mainly made up of Eylau soils in the city of Texarkana. Most areas range from 20 to 200 acres. The areas of Eylau soils and Urban land are so intricately mixed that it was not feasible to map them separately at the scale selected for mapping.

Eylau soils make up about 50 to 75 percent of this map unit. Typically, the surface layer is yellowish brown fine sandy loam about 6 inches thick. The upper part of the subsoil is strong brown sandy clay loam to a depth of about 21 inches, the middle part is yellowish brown, mottled sandy clay loam to a depth of 39 inches, and the lower part is mottled, yellowish brown and yellowish red sandy clay loam and loam to a depth of 72 inches or more.

The Eylau soil is low in natural fertility and organic matter content. Reaction ranges from slightly acid to strongly acid in the surface layer and is strongly acid or very strongly acid in the subsoil. Permeability is moderately slow. The available water capacity is medium, and runoff is medium. The lower part of the subsoil restricts the penetration of roots. This soil has a perched water table within 2 or 3 feet of the surface during winter and spring.

Urban land makes up 25 to 50 percent of the map unit. Urban land consists of soils that have been so altered or obscured by buildings or other structures that classification of the soils is impractial. Typical structures are single dwellings, streets and roads, shopping centers of less than 40 acres, and schools and parks.

Included with this complex in mapping are a few intermingled areas of Bowie, Sacul, and Sawyer soils. Also included are areas of Eylau soils and other soils that have been altered by cutting, grading, and filling. In a few areas Urban land makes up more than 50 percent of the map unit.

This Eylau soil is moderately suited to most urban uses. Wetness is a moderate limitation for dwellings and small commercial buildings. Low strength and wetness are moderate limitations for roads and streets. Moderately slow permeability and wetness are severe limitations for septic tank absorption fields. All of these limitations can usually be overcome by proper engineering design.

This complex is not assigned to a capability subclass or a woodland suitability group.

20—Eylau-Urban land complex, 3 to 5 percent slopes. This deep, moderately well drained, gently sloping complex consists of Eylau soils and areas of soils modified by urban development. The developed areas are mainly made up of Eylau soils in the city of Texarkana. Most areas range from 20 to 200 acres. The areas of Eylau soils and Urban land are so intricately mixed that it was not feasible to map them separately at the scale selected for mapping.

Eylau soils make up about 50 to 75 percent of this map unit. Typically, the surface layer is yellowish brown fine sandy loam about 6 inches thick. The upper part of the subsoil is strong brown sandy clay loam to a depth of about 21 inches, the middle part is yellowish brown, mottled sandy clay loam to a depth of 39 inches, and the lower part is mottled, yellowish brown and yellowish red sandy clay loam and loam to a depth of 72 inches or more.

The Eylau soil is low in natural fertility and organic matter content. Reaction ranges from slightly acid to strongly acid in the surface layer and is strongly acid or very strongly acid in the subsoil. Permeability is moderately slow. The available water capacity is medium, and runoff is medium. The lower part of the subsoil restricts the penetration of roots. This soil has a perched water table within 2 or 3 feet of the surface during winter and spring.

Urban land makes up 25 to 50 percent of the map unit. Urban land consists of soils that have been so altered or obscured by buildings or other structures that classification of the soils is impractical. Typical structures are single and multiple unit dwellings, streets, shopping centers of less than 40 acres, and schools and parks.

Included with this complex in mapping are a few intermingled areas of Bowie, Sacul, and Sawyer soils. Also included are areas of Eylau soils and other soils that have been altered by cutting, grading, and filling. In a few areas Urban land makes up more than 50 percent of the map unit.

This Eylau soil is moderately suited to most urban uses. Wetness is a moderate limitation for dwellings. Wetness and slope are moderate limitations for small commercial buildings. Low strength and wetness are moderate limitations for local roads and streets. Moderately slow permeability and wetness are severe limitations for septic tank absorption fields. All of these limitations can usually be overcome by proper engineering design.

This complex is not assigned to a capability subclass or a woodland suitability group.

21—Felker silt loam, 0 to 1 percent slopes. This deep, somewhat poorly drained, level soil is on low terraces. Individual areas range from 50 to 1,000 acres or more.

Typically, the surface layer is dark grayish brown silt loam about 5 inches thick. The subsurface layer is light yellowish brown silt loam to a depth of 9 inches. The upper part of the subsoil is light yellowish brown, mottled silt loam to a depth of about 40 inches, and the middle part is mottled, yellowish brown silty clay loam to a depth of about 49 inches. The lower part is mottled, light brownish gray, yellowish brown, and yellowish red silty

clay loam to a depth of about 62 inches and yellowish brown, mottled silt loam to a depth of 72 inches or more.

This soil is low in natural fertility and low in organic matter content. Permeability is moderately slow, and available water capacity is medium. Reaction is strongly acid or very strongly acid throughout. The water table is seasonally high and is within 36 inches of the surface from late in winter to early in spring.

Included with this soil in mapping are a few small areas of Adaton, Amy, Harleston, Guyton, and Muskogee soils. Also included are soils that have clayey textures below a depth of 50 inches but otherwise are similar to the Felker soils.

This Felker soil is well suited to cultivated crops. The main crops are grain sorghum, soybeans, and cotton. Surface runoff is very slow, and excess water is a moderate hazard. Farming operations are often delayed for several days after a rain unless drainage systems are installed. This soil is well suited to pasture. Adapted pasture plants are bermudagrass, tall fescue, white clover, bahiagrass, and dallisgrass. Wetness is a moderate limitation for pasture.

This soil is well suited to woodland. Adapted species are loblolly pine, water oak, and sweetgum. Wetness is a moderate limitation to use of equipment for woodland management, but this limitation can usually be overcome by using special equipment and by planting and harvesting during the drier seasons.

This soil is moderately suited or poorly suited to most urban uses. Wetness and moderately slow permeability are severe limitations for septic tank absorption fields. These limitations are difficult to overcome. Wetness and moderate shrink-swell are moderate limitations for dwellings and small commercial buildings. Wetness, moderate shrink-swell, and low strength are moderate limitations for local roads and streets. Installation of a drainage system and proper engineering design help to overcome these limitations.

This soil is in capability subclass IIw and woodland suitability group 2w8.

22—Fluvaquents, frequently flooded. These level to nearly level soils are on flood plains in the Coastal Plains. Individual areas range from about 20 to 200 acres or more. Slopes range from 0 to 3 percent.

Fluvaquents consist of poorly drained soils that have been altered or obscured by mining operations. The soil material ranges from loamy sand to silty clay loam. The content of coarse fragments ranges from 5 to about 50 percent.

Included with these soils in mapping are a few small areas of Amy, Guyton, and Sardis soils and small areas of Udorthents. Also included are abandoned mine pits, which are long open excavations from which soil and the underlying material have been removed, and mine spoil areas, which are on low narrow ridges.

The soils in this map unit are unsuitable for cultivated crops. The smoothed areas are moderately suited to pasture, but the unsmoothed areas are poorly suited to pasture. Adapted plants include bermudagrass, bahiagrass, tall fescue, annual lespedeza, and sericea lespedeza. Management concerns are flood control, proper stocking, controlled grazing, and brush control.

The soils in this map unit are poorly suited to woodland. Seedling mortality, the hazard of erosion, and wetness are severe concerns for woodland use and management.

Fluvaquents are unsuited to most urban uses. Frequent flooding and a high water table are severe limitations for dwellings, small commercial buildings, local roads and streets, and septic tank absorption fields. These limitations are difficult to overcome

This map unit is in capability subclass VIIw. It is not assigned to a woodland suitability group.

23—Foley silt loam, 0 to 2 percent slopes. This deep, nearly level, poorly drained soil is on terraces and upland flats. Individual areas range from about 20 to 1,000 acres or more.

Typically, the surface layer is dark grayish brown silt loam about 3 inches thick. The subsurface layer is light brownish gray, mottled silt loam to a depth of 8 inches. The upper part of the subsoil is grayish brown, mottled silt loam and silty clay loam to a depth of 25 inches, the middle part is light brownish gray, mottled silty clay loam to a depth of 58 inches, and the lower part is light olive gray, mottled silty clay loam to a depth of 80 inches.

This soil is moderate in natural fertility, but a high concentration of sodium is below a depth of about 17 inches. Organic matter content is low. Reaction ranges from medium acid to very strongly acid in the surface layer and upper part of the subsoil and from neutral to strongly alkaline in the middle and lower parts. Permeability is very slow, and available water capacity is medium. The water table is seasonally high and is within 12 inches of the surface from late in winter to early in spring.

Included with this soil in mapping are a few small areas of Midland, Kamie, and Guyton soils. Also included are rounded mounds of soil that are about 5 feet high and about 50 feet in diameter and a few areas of soils that increase in content of clay in the lower part of the subsoil but otherwise are similar to Foley soils.

This Foley soil is moderately suited to cultivated crops. The main crops are grain sorghum, soybeans, and rice. Surface runoff is slow, and wetness is a hazard. The high sodium concentration in the subsoil tends to make this soil droughty and also restricts root penetration. This soil is moderately suited to pasture, and it is mainly used for pasture. Wetness during the winter and spring is the main limitation. Adapted pasture plants are bermudagrass, tall fescue, and bahiagrass. Supplemental

irrigation during the dry months is needed for improved crop and pasture production.

This soil is well suited to woodland. Adapted species are sweetgum and loblolly pine. Moderate seedling mortality is a concern. Wetness is a severe limitation to use of equipment in woodland use and management, but this limitation can usually be overcome by using special equipment and by planting and harvesting during the drier seasons.

This soil is poorly suited to most urban uses. Wetness and very slow permeability are severe limitations for septic tank absorption fields. Wetness is a severe limitation for dwellings and small commercial buildings. Wetness and low strength are severe limitations for local roads and streets. These limitations are usually difficult or impractical to overcome.

This soil is in capability subclass IIIw and woodland suitability group 3w9.

24—Forbing silt loam, 1 to 3 percent slopes. This deep, moderately well drained, nearly level soil is on dissected stream terraces in the Coastal Plains. Individual areas range from 30 to 200 acres.

Typically, the surface layer is dark grayish brown and dark brown silt loam about 5 inches thick. The subsoil is yellowish red and red clay to a depth of 65 inches. The underlying material is red silty clay to a depth of 80 inches.

This soil is moderate in natural fertility and low in organic matter content. Reaction ranges from strongly acid to slightly acid in the surface layer, from medium acid to neutral in the upper part of the subsoil, and from neutral to moderately alkaline in the lower part. The underlying material is mildly alkaline or moderately alkaline. Permeability is very slow, and available water capacity is high. This soil shrinks and cracks when it is dry and expands and the cracks close when it is wet.

Included with this soil in mapping are a few small areas of Gore and Morse soils.

This Forbing soil is moderately suited to crops and small grains. Erosion is a severe hazard. Minimum tillage, contour farming, and the use of cover crops help to reduce runoff and control erosion. This soil is well suited to pasture and hayland. Adapted pasture plants are bermudagrass and bahiagrass.

This soil is moderately suited to woodland, and it is mainly used for tree production. Loblolly pine and shortleaf pine are important species. The clayey subsoil is a moderate limitation to use of equipment in managing and harvesting the tree crop, but this limitation can usually be overcome by logging during the dry seasons.

This soil is poorly suited to most urban uses. High shrink-swell is a severe limitation for dwellings, small commercial buildings, and local roads and streets. Low strength is an additional severe limitation for local roads and streets. Very slow permeability is a severe limitation for septic tank absorption fields. All of these limitations are usually difficult or impractical to overcome.

This soil is in capability subclass IIIe and woodland suitability group 4c2.

25—Forbing silt loam, 3 to 8 percent slopes. This deep, moderately well drained, gently sloping soil is on dissected stream terraces in the Coastal Plains. Individual areas range from 30 to 200 acres.

Typically, the surface layer is dark grayish brown and dark brown silt loam about 5 inches thick. The subsoil is yellowish red and red clay to a depth of 65 inches. The underlying material is red silty clay to a depth of 80 inches.

This soil is moderate in natural fertility and low in organic matter content. Reaction ranges from strongly acid to slightly acid in the surface layer, from medium acid to neutral in the upper part of the subsoil, and from neutral to moderately alkaline in the lower part. The underlying material is mildly alkaline or moderately alkaline. Permeability is very slow, and available water capacity is high. This soil shrinks and cracks when it is dry and expands and the cracks close when it is wet.

Included with this soil in mapping are a few small areas of Gore and Morse soils.

This Forbing soil is poorly suited to cultivated row crops. Runoff is rapid, and the hazard of erosion is very severe. Minimum tillage, contour farming, and the use of cover crops help to reduce runoff and control erosion. This soil is well suited to pasture and hayland. Adapted pasture plants are bermudagrass and bahiagrass.

This soil is moderately suited to woodland, and it is mainly used for tree production. Loblolly pine and shortleaf pine are important species. The clayey subsoil is a moderate limitation to use of equipment in managing and harvesting the tree crop, but this limitation can usually be overcome by logging during the dry seasons.

This soil is poorly suited to most urban uses. High shrink-swell is a severe limitation for dwellings, small commercial buildings, and local roads and streets. Low strength is an additional severe limitation for local roads and streets. Very slow permeability is a severe limitation for septic tank absorption fields. All of these limitations are difficult or impractical to overcome.

This soil is in capability subclass IVe and woodland suitability group 4c2.

26—Gladewater clay, frequently flooded. This deep, poorly drained, level soil is on the Sulphur River flood plain. Individual areas range from 100 to 5,000 acres. Slopes are 0 to 1 percent.

Typically, the surface layer is black clay about 7 inches thick. The subsoil to a depth of about 42 inches is gray clay that has red, yellow, and brown mottles. The underlying material to a depth of 82 inches or more is gray clay that has a few brown mottles.

This soil is high in natural fertility and moderate in organic matter content. Reaction ranges from very strongly acid to medium acid. Permeability is very slow, and available water capacity is high. This soil shrinks and cracks when it is dry and expands and the cracks close when it is wet. The water table is seasonally high and is within 2 feet of the surface during winter and spring. Flooding is frequent and usually occurs during the period from November to May.

Included with this soil in mapping are small areas of soils that have a black surface layer more than 10 inches thick but otherwise are similar to the Gladewater soils. Also included are small areas of Billyhaw, Perry, and Yorktown soils.

Cultivation of this Gladewater soil is not recommended because of frequent flooding. This soil is poorly suited to pasture and hayland. Bermudagrass is an adapted pasture plant.

This soil is well suited to woodland, and it is mainly used for wood production. Adapted species include sweetgum, water oak, and green ash. Wetness and flooding are severe limitations to use of equipment in managing and harvesting the tree crop, but these limitations are usually overcome by logging during the dry seasons.

This soil is severely limited for most urban uses. Flooding, wetness, and shrink-swell are severe limitations for dwellings and small commercial buildings. Flooding, very slow permeability, and wetness are severe limitations for septic tank absorption fields. Low strength, wetness, and flooding are severe limitations for local roads and streets. All of these limitations are usually difficult or impractical to overcome.

This soil is in capability subclass Vw and woodland suitability group 2w6.

27—Gore silt loam, 1 to 3 percent slopes. This deep, moderately well drained, nearly level soil is on stream terraces in the Coastal Plains. Individual areas range from 20 to 200 acres.

Typically, the surface layer is dark brown silt loam about 2 inches thick. The subsurface layer is pale brown silt loam to a depth of about 7 inches. The upper part of the subsoil is yellowish red, mottled clay to a depth of about 14 inches, the middle part is light brownish gray, mottled clay to a depth of about 50 inches, and the lower part is red clay to a depth of about 60 inches. The underlying material is yellowish red clay.

This soil is moderate in natural fertility and low in organic matter content. Reaction is strongly acid or medium acid in the surface layer, very strongly acid or strongly acid in the upper part of the subsoil, and ranges from medium acid to neutral in the lower part. Permeability is very slow, and available water capacity is high.

Included with this soil in mapping are a few small areas of Acadia, Forbing, McKamie, Kamie, and Muskogee soils.

This Gore soil is poorly suited to cultivated crops. Runoff is medium, and the hazard of erosion is very severe. Minimum tillage, contour farming, and the use of cover crops help to reduce runoff and control erosion. This soil is well suited to pasture and hayland. Adapted pasture plants are bermudagrass and bahiagrass.

This soil is well suited to woodland, and it is mainly used for tree production. Loblolly pine and shortleaf pine are important species. The clayey subsoil is a moderate limitation to use of equipment in managing and harvesting the tree crop, but this limitation can usually be overcome by logging during the dry seasons.

This soil is poorly suited to most urban uses. Very slow permeability is a severe limitation for septic tank absorption fields. High shrink-swell is a severe limitation for dwellings and small commercial buildings. High shrink-swell and low strength are severe limitations for local streets and roads. All of these limitations are difficult or impractical to overcome.

This soil is in capability subclass IVe and woodland suitability group 3c2.

28—Gore silt loam, 3 to 8 percent slopes. This deep, moderately well drained, gently sloping soil is on stream terraces in the Coastal Plains. Individual areas range from 20 to 200 acres.

Typically, the surface layer is dark brown silt loam about 2 inches thick. The subsurface layer is pale brown silt loam to a depth of about 7 inches. The upper part of the subsoil is yellowish red mottled clay to a depth of about 14 inches, the middle part is light brownish gray, mottled clay to a depth of about 50 inches, and the lower part is red clay to a depth of about 60 inches. The underlying material is yellowish red clay.

This soil is moderate in natural fertility and low in organic matter content. Reaction is strongly acid or medium acid in the surface layer, very strongly acid or strongly acid in the upper part of the subsoil, and ranges from medium acid to neutral in the lower part. Permeability is very slow, and available water capacity is high.

Included with this soil in mapping are a few small areas of Acadia, Forbing, McKamie, Kamie, and Muskogee soils.

This Gore soil is poorly suited to cultivated crops. Runoff is rapid, and the hazard of erosion is very severe. Minimum tillage, contour farming, and the use of cover crops help to reduce runoff and control erosion. This soil is well suited to pasture and hayland. Adapted pasture plants are bermudagrass and bahiagrass.

This soil is well suited to woodland, and it is mainly used for tree production. Loblolly pine and shortleaf pine are important species. The clayey subsoil is a moderate limitation to use of equipment in managing and

harvesting the tree crop, but this limitation is usually overcome by logging during the dry seasons.

This soil is poorly suited to most urban uses. Very slow permeability is a severe limitation for septic tank absorption fields. High shrink-swell is a severe limitation for dwellings and small commercial buildings. High shrink-swell and low strength are severe limitations for local roads and streets. All of these limitations are difficult or impractical to overcome.

This soil is in capability subclass IVe and woodland suitability group 3c2.

29—Guyton silt loam, frequently flooded. This deep, poorly drained, level soil is on flood plains in the Coastal Plains. Slopes are 0 to 1 percent. Individual areas range from about 20 to 1,000 acres or more.

Typically, the surface layer is dark grayish brown, mottled silt loam about 4 inches thick. The subsurface layer is gray, mottled silt loam to a depth of about 19 inches. The upper part of the subsoil is gray, mottled silty clay loam to a depth of about 35 inches, and the lower part is gray, mottled silt loam to a depth of 72 inches or more.

This soil is moderate in natural fertility and low in organic matter content. Reaction ranges from very strongly acid to medium acid in the surface layer and the subsoil. The underlying material ranges from strongly acid to mildly alkaline. Permeability is slow, and available water capacity is high. Flooding is frequent and usually occurs between November to June. A perched water table is within 18 inches of the surface during winter and spring.

Included with this soil in mapping are a few areas of Ouachita and Sardis soils. Also included are areas of soils that increase in content of clay as depth increases but otherwise are similar to the Guyton soils.

This Guyton soil is unsuited to cultivated crops because of frequent flooding, and it is poorly suited to pasture. Flooding and wetness during winter and spring are the main limitations. Livestock traffic severely damages the pasture during the wet season. Adapted pasture plants are common bermudagrass, tall fescue, and white clover.

This soil is mainly used for woodland. It is well suited to loblolly pine and sweetgum. Wetness and flooding are limitations to use of equipment in managing and harvesting the tree crop, but these limitations can usually be overcome by using special equipment and by harvesting during the drier seasons.

This soil is severely limited for most urban uses. Flooding, slow permeability, and wetness are severe limitations for septic tank absorption fields. Flooding and wetness are severe limitations for dwellings, small commercial buildings, and local streets and roads. Low strength is an additional severe limitation for local roads and streets. These limitations are usually very difficult or impractical to overcome.

This soil is in capability subclass Vw and woodland suitability group 2w9.

30—Harleston fine sandy loam, 1 to 3 percent slopes. This deep, moderately well drained, nearly level soil is on hilltops, toe slopes, and low terraces in the Coastal Plains. Individual areas range from about 20 to 1,000 acres or more.

Typically, the surface layer is dark grayish brown fine sandy loam about 2 inches thick. The subsurface layer is light yellowish brown fine sandy loam to a depth of 7 inches. The upper part of the subsoil to a depth of about 58 inches is yellowish brown, mottled fine sandy loam and loam, and the lower part to a depth of 72 inches or more is loam that is mottled in shades of yellow, brown, red, and gray.

This soil is low in natural fertility and organic matter content. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderate, and available water capacity is medium. During winter and spring, an apparent high water table is within 2 or 3 feet of the surface.

Included with this soil in mapping are a few small areas of Bowie, Ruston, Felker, Eylau, and Smithton soils.

This Harleston soil is well suited to cultivated crops. The main crops are grain sorghum, soybeans, and small grains. Runoff is slow, and the hazard of erosion is moderate. Seasonal wetness is a moderate limitation, but this limitation can be overcome by adequate surface drainage. Clean-tilled crops that leave large amounts of residue can be grown year after year if contour cultivation and good management are practiced. This soil is also well suited to pasture. Adapted pasture plants are tall fescue, white clover, and hybrid bermudagrass.

This soil is well suited to woodland, and it is mainly used for tree production. Adapted species are loblolly pine, shortleaf pine, and sweetgum. Wetness limits the use of equipment in managing and harvesting the tree crop, but this limitation can usually be overcome by harvesting and planting during the drier seasons.

This soil is moderately suited to most urban uses. Wetness is a severe limitation for septic tank absorption fields, and it is difficult to overcome. Wetness is a moderate limitation for dwellings, local roads and streets, and small commercial buildings, but it can usually be overcome for these uses if drainage systems are installed and proper engineering design is used.

This soil is in capability subclass IIe and woodland suitability group 2w8.

31—Houston clay, 1 to 3 percent slopes. This deep, moderately well drained, nearly level soil is on hilltops and toe slopes in the Blackland Prairies. Individual areas range from about 10 to 100 acres.

Typically, the surface layer is very dark gray clay about 5 inches thick. The subsurface layer is very dark gray clay to a depth of about 25 inches. Below this is olive gray, mottled clay to a depth of about 41 inches. It is underlain by mottled clay to a depth of 72 inches or more.

This soil is high in natural fertility and moderate in organic matter content. Reaction ranges from slightly acid to mildly alkaline in the surface layer and from neutral to moderately alkaline in the subsoil and underlying material. Permeability is very slow, and available water capacity is high. This soil has high shrink-swell potential. Tilth is difficult to maintain because of the clayey surface layer. A seasonal high water table is within 4 to 6 feet of the surface during winter and spring.

Included with this soil in mapping are a few small areas of Demopolis and Sumter soils.

This Houston soil is well suited to cultivated crops, and it is mainly used for cropland. The main crops are soybeans and grain sorghum. Runoff is medium, and the hazard of erosion is moderate. Clean-tilled crops that leave large amounts of residue can be grown year after year if contour cultivation and good management are practiced. This soil is also well suited to pasture. Adapted pasture plants include annual lespedeza, sericea lespedeza, tall fescue, white clover, alfalfa, and hybrid bermudagrass.

This soil is moderately suited to eastern redcedar. When this soil is wet, the clayey texture restricts the use of equipment in managing and harvesting the tree crop, but this limitation can be partially overcome by planting and harvesting during the drier seasons.

This soil is poorly suited to most urban uses. Slow permeability is a severe limitation for septic tank absorption fields. High shrink-swell is a severe limitation for dwellings, small commercial buildings, and local roads and streets. Low strength is an additional severe limitation for local roads and streets. All of these limitations are usually difficult or expensive to overcome.

This soil is in capability subclass IIe and woodland suitability group 4c2.

32—Houston clay, 3 to 8 percent slopes. This deep, moderately well drained, gently sloping soil is on hillsides in the Blackland Prairies. Individual areas range from about 10 to more than 200 acres.

Typically, the surface layer is very dark gray clay about 5 inches thick. The subsurface layer is very dark gray clay to a depth of about 25 inches. Below this is olive gray, mottled clay to a depth of about 41 inches. It is underlain by mottled clay to a depth of 72 inches or more.

This soil is high in natural fertility and moderate in organic matter content. Reaction ranges from slightly acid to mildly alkaline in the surface layer and from neutral to moderately alkaline in the subsoil and underlying material. Permeability is very slow, and available water capacity is high. This soil shrinks and cracks when it is dry and expands and the cracks seal when it is wet. Tilth is difficult to maintain because of the clayey surface layer. A seasonal high water table is within 4 to 6 feet of the surface during winter and spring.

Included with this soil in mapping are a few small areas of Demopolis and Sumter soils.

This Houston soil is moderately suited to cultivated crops, and it is mainly used for cropland. The main crops are soybeans and grain sorghum. The hazard of erosion is severe, and runoff is rapid. Clean-tilled crops that leave large amounts of residue can be grown in a rotation system with hay and pasture crops if contour cultivation, minimum tillage, and other good management practices are used. More intensive management is needed in areas where slope gradient and length of slope increase. This soil is well suited to pasture. Adapted pasture plants are annual lespedeza, sericea lespedeza, tall fescue, white clover, and hybrid bermudagrass.

This soil is moderately suited to eastern redcedar. When the soil is wet, the clayey texture restricts the use of equipment in managing and harvesting the tree crop, but this limitation can be partially overcome by planting and harvesting during the drier seasons.

This soil is poorly suited to most urban uses. Slow permeability is a severe limitation for septic tank absorption fields, and it is difficult to overcome. High shrink-swell is a severe limitation for dwellings, small commercial buildings, and local roads and streets. Low strength is an additional severe limitation for local roads and streets. All of these limitations are usually difficult or expensive to overcome.

This soil is in capability subclass IIIe and woodland suitability group 4c2.

33—Kamie fine sandy loam, 1 to 3 percent slopes. This deep, well drained, nearly level soil is on hilltops in the Coastal Plains. Individual areas range from 20 to 1,000 acres or more.

Typically, the surface layer is brown fine sandy loam about 7 inches thick. The subsurface layer is yellowish brown fine sandy loam to a depth of about 11 inches. The upper part of the subsoil to a depth of about 57 inches is yellowish red sandy clay loam, and the lower part to a depth of 80 inches or more is yellowish red sandy clay loam that has pockets of light yellowish brown uncoated sand grains.

This soil is moderate in natural fertility and low in organic matter content. The surface layer is medium acid or slightly acid, and the subsoil ranges from very strongly acid to medium acid. Permeability is moderate, and available water capacity is high. Runoff is medium. Tilth is easy to maintain.

Included with this soil in mapping are a few small areas of Acadia, Gore, and McKamie soils.

This Kamie soil is well suited to farming, and it is mainly used for cultivated crops. The main crops are soybeans and truck crops. Corn, cotton, and small grains are also grown. Erosion is a moderate hazard for cultivated crops. Minimum tillage, contour farming, and the use of cover crops, including grasses and legumes in the cropping system, help to reduce runoff and control erosion. This soil is well suited to pasture and hayland. Adapted pasture plants are bermudagrass, bahiagrass, and tall fescue.

This soil is well suited to woodland. Adapted species are loblolly pine (fig. 5) and shortleaf pine. There are no significant limitations for woodland use or management.

This soil is well suited to moderately suited to most urban uses. Moderate permeability is a moderate limitation for septic tank filter fields. There are no significant limitations for dwellings or small commercial buildings. Low strength is a moderate limitation for local roads and streets. This limitation can usually be overcome by modifying the design during construction.

Figure 5.—Good stand of loblolly pine on Kamie fine sandy loam, 1 to 3 percent slopes.

This soil is in capability subclass IIe and woodland suitability group 3o1.

34—Kamie fine sandy loam, 3 to 8 percent slopes. This deep, well drained, gently sloping soil is on hilltops and hillsides in the Coastal Plains. Individual areas range from 20 to 1,000 acres or more

Typically, the surface layer is brown fine sandy loam about 7 inches thick. The subsurface layer is yellowish brown fine sandy loam to a depth of about 11 inches. The upper part of the subsoil to a depth of 57 inches is yellowish red sandy clay loam, and the lower part to a depth of 80 inches or more is yellowish red sandy clay loam that has pockets of light yellowish brown uncoated sand grains.

This soil is moderate in natural fertility and low in organic matter content. The surface layer is medium acid or slightly acid, and the subsoil ranges from very strongly acid to medium acid. Permeability is moderate, and available water capacity is high. Runoff is medium. Tilth is easy to maintain.

Included with this soil in mapping are a few small areas of Acadia, Gore, and McKamie soils.

This Kamie soil is moderately suited to cultivated crops. The main crops are soybeans and truck crops. Corn, cotton, and small grains are also grown. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage, contour farming, and the use of cover crops, including grasses and legumes in the cropping system, help to reduce runoff and control erosion. This soil is well suited to pasture and hayland, and it is mainly used for pasture and hay. Adapted pasture plants are bermudagrass, bahiagrass, and tall fescue.

This soil is well suited to woodland. Adapted species are loblolly pine, shortleaf pine, and southern red oak. There are no significant limitations for woodland use or management.

This soil is moderately suited to most urban uses. Moderate permeability is a moderate limitation for septic tank filter fields. There are no significant limitations for dwellings. Slope is a moderate limitation for small commercial buildings. Low strength is a moderate limitation for local roads and streets. All of these limitations can usually be overcome by modifying the design during construction.

This soil is in capability subclass IIIe and woodland suitability group 3o1.

35—Kamie fine sandy loam, 8 to 20 percent slopes. This deep, well drained, moderately sloping to moderately steep soil is on hillsides in the Coastal Plains. Individual areas range from 10 to 80 acres.

Typically, the surface layer is brown fine sandy loam about 7 inches thick. The subsurface layer is yellowish brown fine sandy loam to a depth of about 11 inches.

The upper part of the subsoil to a depth of about 57 inches is yellowish red sandy clay loam, and the lower part to a depth of 80 inches or more is yellowish red sandy clay loam that has pockets of light yellowish brown uncoated sand grains.

This soil is moderate in natural fertility and low in organic matter content. The surface layer is medium acid or slightly acid, and the subsoil ranges from very strongly acid to medium acid. Permeability is moderate, and available water capacity is high.

Included with this soil in mapping are a few small areas of Gore and McKamie soils. Also included are a few small areas of soils that have slopes of more than 20 percent.

This Kamie soil is not suited to cultivated crops, but it is moderately suited to pasture. Adapted pasture plants are bermudagrass, bahiagrass, and tall fescue. Runoff is rapid, and the hazard of erosion is very severe. Minimum tillage, contour farming, and the use of cover crops, including grasses and legumes in the cropping system help to reduce runoff and control erosion.

This soil is well suited to woodland, and it is mainly used for tree production. Adapted species are loblolly pine, shortleaf pine, and southern red oak. There are no significant limitations for woodland use or management.

This soil is moderately suited to most urban uses. Moderate permeability and slope are moderate limitations for septic tank filter fields. Slope is a moderate limitation for dwellings and a severe limitation for small commercial buildings. Low strength and slope are moderate limitations for local roads and streets. All of these limitations would require special engineering design to overcome.

This soil is in capability subclass VIe and woodland suitability group 3o1.

36—Kiomatia loamy fine sand, frequently flooded. This deep, well drained, gently undulating soil is on flood plains adjacent to the Red River. Individual areas range from 40 to 300 acres. Slopes range from 0 to 3 percent.

Typically, the surface layer is reddish brown loamy fine sand about 7 inches thick. The underlying material to a depth of 60 inches or more is stratified, brown, light brown, and reddish brown loamy very fine sand, loamy fine sand, loamy sand, silt loam, and very fine sandy loam.

This soil is low in natural fertility and low in organic matter content. Reaction is mildly alkaline or moderately alkaline throughout. Permeability is rapid, and available water capacity is low. The water table is within 3 to 5 feet of the surface from late in winter to early in spring. This soil is flooded several times during most years.

Included with this soil in mapping are a few small areas of Severn and Oklared soils and soils that have finer textures in the surface layer and are below a depth of 40 inches but otherwise are similar to the Kiomatia soils. Also included are areas that are flooded occasionally.

This Kiomatia soil is not suited to cultivated crops, and it is poorly suited to pasture. Flooding is a severe limitation for farming. Flooding and droughtiness are the main limitations. Adapted pasture plants are bermudagrass and native annual grasses.

This soil is well suited to woodland, and it is mainly used for tree production. Adapted species are eastern cottonwood and sweetgum. Wetness and flooding are moderate limitations, but these limitations can usually be overcome by harvesting during the drier seasons.

This soil is severely limited for most urban uses. Flooding is a severe limitation for dwellings, septic tank absorption fields, small commercial buildings, and local streets and roads. Wetness is an additional severe limitation for septic tank filter fields. These limitations are usually impractical to overcome.

This soil is in capability subclass Vw and woodland suitability group 2w5.

37—Kipling silt loam, 2 to 5 percent slopes. This deep, somewhat poorly drained, nearly level to gently sloping soil is on hilltops in intermingled areas in the Coastal Plains and Blackland Prairies. Individual areas range from about 20 to 1,000 acres or more.

Typically, the surface layer is dark grayish brown silt loam about 3 inches thick. The upper part of the subsoil is yellowish brown, mottled silty clay loam and silty clay to a depth of about 18 inches, and the lower part is red, gray, and brown, mottled silty clay and clay to a depth of about 42 inches. The underlying material to a depth of 80 inches or more is light gray, mottled clay.

This soil is moderate in natural fertility and low in organic matter content. Reaction ranges from medium acid to very strongly acid in the surface layer and upper part of the subsoil, and from very strongly acid to moderately alkaline in the lower part of the subsoil and underlying material. Permeability is very slow, and available water capacity is high. This soil shrinks and cracks when it is dry and expands and the cracks close when it is wet. During winter and spring a perched water table is within 18 to 36 inches of the surface.

Included with this soil in mapping are a few small areas of Oktibbeha soils. Also included is a soil that is more than 60 percent clay in the subsoil but otherwise is similar to the Kipling soil.

This Kipling soil is moderately suited to cultivated crops. The main crops are soybeans and grain sorghum. Erosion is a severe hazard, but clean-tilled crops that leave large amounts of residue can be grown yearly if contour cultivation and good management are practiced. This soil is well suited to pasture and hay. Adapted pasture plants are bahiagrass, hybrid bermudagrass, tall fescue, and white clover.

This soil is well suited to woodland, and it is mainly used for tree production. Adapted species are loblolly

pine, cherrybark oak, Shumard oak, and sweetgum. When this soil is wet, the clayey subsoil restricts the use of equipment in managing and harvesting the tree crop, but using special equipment and planting and harvesting in the drier seasons can partially overcome this limitation.

This soil is poorly suited to most urban uses. Very slow permeability and wetness are severe limitations for septic tank absorption fields. These limitations are difficult to overcome. High shrink-swell and low strength are severe limitations for local roads and streets. High shrink-swell is a severe limitation for dwellings and small commercial buildings. These limitations are difficult to overcome and would require special engineering design.

This soil is in capability subclass IIIe and woodland suitability group 2c8.

38—Latanier clay, gently undulating. This deep, somewhat poorly drained soil is on alluvial plains of the Red River. Individual areas range from 40 to 500 acres or more. Slopes range from 0 to 3 percent.

Typically, the surface is dark reddish brown clay about 4 inches thick. The subsoil is dark reddish brown clay to a depth of about 29 inches. The underlying material to a depth of 82 inches or more is stratified, yellowish red and reddish brown silt loam, very fine sandy loam, and loamy very fine sand.

This soil is high in natural fertility and moderate in organic matter content. Reaction ranges from neutral to moderately alkaline throughout. Permeability is very slow, and water capacity is high. This soil shrinks and cracks when it is dry and expands and the cracks close when it is wet. The water table is seasonally high and is within 1 foot to 3 feet of the surface during winter and early in spring.

Included with this soil in mapping are small areas of Billyhaw and Severn soils. Also included are small areas of soils that have a solum less than 20 inches thick but otherwise are similar to the Latanier soils. Areas that are subject to flooding are also included.

This Latanier soil is moderately suited to cultivated crops, and it is mainly used for cropland. The principal crops are soybeans, grain sorghum, and cotton. Erosion is the main limitation for cultivated crops. Excess water is also a moderate hazard. Farming operations are commonly delayed for several days after a rain, and surface drainage is sometimes needed. This soil is moderately suited to pasture. Adapted pasture plants are bermudagrass and tall fescue. Wetness is a moderate limitation during winter and spring.

This soil is well suited to hardwood trees, such as eastern cottonwood, sweetgum, and water oak. Wetness is a moderate limitation to use of equipment in managing and harvesting the tree crop, but this limitation can usually be overcome by logging during the dry seasons.

This soil is poorly suited to most urban uses. High shrink-swell and wetness are severe limitations for dwellings and small commercial buildings. Low strength and high shrink-swell are severe limitations for local roads and streets. Very slow permeability and wetness are severe limitations for septic tank absorption fields. All of these limitations are usually difficult or impractical to overcome.

The soil is in capability subclass IIIe and woodland suitability group 2w5.

39—Latonia loamy fine sand, 2 to 5 percent slopes. This deep, well drained, nearly level to gently sloping soil is on stream terraces in the Southern Coastal Plains. Individual areas range from about 15 to 100 acres.

Typically, the surface layer is brown loamy fine sand about 6 inches thick. The subsurface layer is light yellowish brown loamy fine sand to a depth of about 17 inches. The subsoil is strong brown fine sandy loam to a depth of about 45 inches. The underlying material to a depth of 72 inches or more is pale brown loamy sand.

This soil is low in natural fertility and organic matter content. Reaction is strongly acid or very strongly acid except in areas where the soil has been limed. Permeability is moderately rapid, and available water capacity is low.

Included with this soil in mapping are a few small areas of Ruston and Bowie soils. Also included are a few small areas of soils that have slopes of more than 5 percent.

This Latonia soil is well suited to cultivated crops. Soybeans, cotton, grain sorghum, and small grains are the main crops. Erosion is a moderate hazard. Clean-tilled crops that leave large amounts of residue can be grown year after year if good management is practiced. This soil is well suited to pasture and hayland, and it is mainly used for pasture and hay. Adapted pasture plants are tall fescue, white clover, bermudagrass, and Pensacola bahiagrass.

This soil is well suited to woodland. Loblolly pine is a common tree. There are no significant limitations for woodland use or management.

This soil is well suited to most urban uses. Poor filtering capability is a severe limitation for septic tank filter fields. There are no significant limitations for dwellings, small commercial buildings, or local roads and streets.

This soil is in capability subclass IIe and woodland suitability group 2o1.

40—Louin silty clay loam, 0 to 1 percent slopes. This deep, somewhat poorly drained, level soil is on broad flats of terraces in the Coastal Plains. Individual areas range from about 100 to 1,000 acres or more.

Typically, the surface and subsurface layers are dark gray and gray silty clay loam about 9 inches thick. The subsoil is light brownish gray and gray, mottled clay to a depth of about 70 inches.

This soil is low in natural fertility and organic matter content. Reaction is very strongly acid or strongly acid throughout. Permeability is very slow, and available water capacity is high. This soil shrinks and cracks when it is dry and expands and the cracks seal when it is wet. A seasonal high water table is within 24 inches of the surface during winter and spring. Tilth is difficult to maintain because of the clayey texture.

Included with this soil in mapping are a few small areas of Wrightsville and Acadia soils. Also included are a few areas of Louin soils that have silt loam or silty clay surface layers.

This Louin soil is moderately suited to cultivated crops. The main crops are rice and soybeans. Wetness is a severe limitation, and surface drains need to be installed in most areas. This soil is moderately suited to pasture and hayland. Adapted pasture plants are tall fescue, white clover, and bermudagrass. Wetness is the main limitation. Livestock traffic may damage pastures during the wet season.

This soil is well suited to woodland, and it is mainly used for tree production. Loblolly pine and sweetgum are adapted species. The clayey texture and wetness of this soil severely limit the use of equipment in managing and harvesting the tree crop, but these limitations can be partially overcome by using special equipment and by planting and harvesting during the drier seasons.

This soil is poorly suited to most urban uses. Very slow permeability and wetness are severe limitations for septic tank absorption fields. These limitations are difficult to overcome. High shrink-swell and wetness are severe limitations for dwellings, small commercial buildings, and local roads and streets. These limitations are usually difficult or expensive to overcome.

This soil is in capability subclass IIIw and woodland suitability group 3w9.

41—McKamie silt loam, 2 to 5 percent slopes. This deep, well drained, nearly level to gently sloping soil is on dissected terraces in the Coastal Plains. Areas range from 20 to 400 acres or more.

Typically, the surface layer is dark brown silt loam about 2 inches thick. The subsurface layer is yellowish brown silt loam to a depth of about 8 inches. The upper part of the subsoil is red and dark red clay to a depth of about 38 inches, and the lower part is yellowish red silty clay loam to a depth of about 43 inches. The underlying material to a depth of 60 inches or more is stratified, yellowish red silt loam and very fine sandy loam.

This soil is moderate in natural fertility and low in organic matter content. Reaction is medium acid or strongly acid in the surface layer. It ranges from medium acid to very strongly acid in the upper part of the subsoil and from medium acid to mildly alkaline in the lower part. The underlying material ranges from neutral to moderately alkaline. Permeability is very slow, and available water capacity is high. This soil shrinks and cracks when it is dry and expands and the cracks seal when it is wet.

Included with this soil in mapping are a few small areas of Forbing, Gore, Morse, and Muskogee soils. Also included are a few areas of soils that have a fine sandy loam surface layer.

This McKamie soil is poorly suited to cultivated crops. The main crop is soybeans. Runoff is medium to rapid, and the hazard of erosion is very severe. The surface layer of this soil is thin, and the clayey subsoil restricts root penetration and the movement of water through the soil. If contour cultivation and good management are practiced and if the long slopes are terraced, clean-tilled crops that leave large amounts of residue can be grown in rotation. More intensive management is needed in areas where the slope gradient and length of slope increase. This soil is well suited to pasture and hay, and it is mainly used for pasture and hay. Adapted pasture plants are bermudagrass and bahiagrass.

This soil is well suited to woodland. Adapted species are loblolly pine and shortleaf pine. The clayey subsoil is a moderate limitation to use of equipment in managing and harvesting the tree crop. Moderate seedling mortality is a management concern.

This soil is poorly suited to most urban uses. Very slow permeability is a severe limitation for septic tank absorption fields. This limitation can sometimes be overcome by special engineering design or by increasing the size of the absorption field. High shrink-swell is a severe limitation for dwellings, small commerical buildings, and local roads and streets. Low strength is an additional severe limitation for local roads and streets. These limitations are usually difficult or impractical to overcome.

This soil is in capability subclass IVe and woodland suitability group 3c2.

42—McKamie silt loam, 5 to 20 percent slopes. This deep, well drained, gently sloping to moderately steep soil is on dissected terraces in the Coastal Plains. Areas range from 10 to 100 acres or more.

Typically, the surface layer is dark brown silt loam about 2 inches thick. The subsurface layer is yellowish brown silt loam to a depth of about 8 inches. The upper part of the subsoil is red and dark red clay to a depth of about 38 inches, and the lower part is yellowish red silty clay loam to a depth of about 43 inches. The underlying material to a depth of 60 inches or more is stratified, yellowish red silt loam and very fine sandy loam.

This soil is moderate in natural fertility and low in organic matter content. Reaction is medium acid or strongly acid in the surface layer. It ranges from medium acid to very strongly acid in the upper part of the subsoil and from medium acid to mildly alkaline in the lower part. The underlying material ranges from neutral to moderately alkaline. Permeability is very slow, and available water capacity is high. This soil shrinks and

cracks when it is dry and expands and the cracks seal when it is wet.

Included with this soil in mapping are a few small areas of Gore and Sacul soils.

This McKamie soil is unsuited to cultivated crops, but it is moderately suited to pasture and hay. Adapted pasture plants are bermudagrass and bahiagrass. Runoff is rapid, and the hazard of erosion is very severe. The surface layer of this soil is thin, and the clayey subsoil restricts root penetration and the movement of water through the soil.

This soil is well suited to woodland, and it is mainly used for tree production. Adapted species are loblolly pine and shortleaf pine. The clayey subsoil is a moderate limitation to use of equipment in managing and harvesting the tree crop. Moderate seedling mortality is a management concern.

This soil is poorly suited to most urban uses. Very slow permeability is a severe limitation for septic tank absorption fields. High shrink-swell is a severe limitation for dwellings, small commercial buildings, and local roads and streets. Slope is an additional severe limitation for small commercial buildings, and low strength is an additional severe limitation for local roads and streets. All of these limitations are usually difficult or impractical to overcome.

This soil is in capability subclass VIe and woodland suitability group 3c2.

43—Midland silty clay loam, 0 to 1 percent slopes. This deep, poorly drained, level soil is on low terraces in the Coastal Plains. Individual areas range from about 20 to 1,000 acres or more.

Typically, the surface layer is dark grayish brown, mottled silty clay loam about 2 inches thick. The subsurface layer is gray, mottled silty clay loam to a depth of about 7 inches. The upper part of the subsoil is dark gray, mottled silty clay to a depth of about 53 inches, and the lower part is light brownish gray, mottled silty clay to a depth of about 70 inches. The underlying material to a depth of 80 inches or more is light brownish gray, mottled silty clay.

This soil is moderate in natural fertility and low in organic matter content. Reaction ranges from strongly acid to slightly acid in the surface layer and upper part of the subsoil and from neutral through moderately alkaline in the lower part of the subsoil and underlying material. Permeability is very slow, and available water capacity is high. This soil shrinks and cracks when it is dry and expands and the cracks seal when it is wet. A seasonal water table is within 24 inches of the surface during winter and spring. Tilth is difficult to maintain because of the clayey texture.

Included with this soil in mapping are a few small areas of Foley, Perry, and Kamie soils. Also included are a few areas of Midland soils that have a silty clay surface layer.

This Midland soil is moderately suited to cultivated crops. The main crops are grain sorghum, soybeans, and small grains. Wetness is the main limitation for cultivated crops, and surface drains need to be installed in most areas. This soil is moderately suited to pasture and hayland, and it is mainly used for pasture and hay. Adapted pasture plants are tall fescue, white clover, and bermudagrass. Wetness is the main limitation. Livestock traffic may damage pastures during the wet season.

This soil is well suited to woodland. Adapted species are water oak, sweetgum, and eastern cottonwood. The clayey subsoil and wetness severely limit the use of equipment in managing and harvesting the tree crop, but these limitations can be partially overcome by using special equipment and by planting and harvesting during the drier seasons.

This soil is poorly suited to most urban uses. Very slow permability and wetness are severe limitations for septic tank absorption fields. High shrink-swell and wetness are severe limitations for dwellings, small commercial buildings, and local streets and roads. Low strength is an additional severe limitation for local streets and roads. All of these limitations are usually difficult or impractical to overcome.

This soil is in capability subclass IIIw and woodland suitability group 2w6.

44—Morse clay, 3 to 8 percent slopes, eroded. This deep, well drained, gently sloping soil is on terraces in the Coastal Plains. Individual areas range from 100 to 500 acres.

Typically, the surface layer is dark reddish brown clay about 6 inches thick. The next layer is reddish brown clay to a depth of about 14 inches. It is underlain by yellowish red clay to a depth of about 40 inches and yellowish red silty clay loam and stratified lenses of yellowish red silt loam and silty clay to a depth of 72 inches or more.

This soil is moderate in natural fertility and low in organic matter content. Reaction is mildly alkaline or moderately alkaline throughout. Permeability is very slow, and available water capacity is high. This soil shrinks and cracks when it is dry and expands and the cracks seal when it is wet. Tilth is difficult to maintain because of the clayey texture.

Included with this soil in mapping are a few small areas of Gore and McKamie soils. Also included are a few areas of soils that have slopes of more than 8 percent.

This Morse soil is unsuitable for cultivated crops, but it is moderately suited to pasture. Adapted pasture plants are bahiagrass, bermudagrass, and tall fescue. Runoff is medium to rapid, and the hazard of erosion is very severe.

This soil is moderately suited to woodland. Eastern redcedar is a common tree. The clayey surface layer and subsoil is a severe limitation for use of equipment in

managing and harvesting the tree crop, but this limitation can usually be overcome by using special equipment and by harvesting during the drier seasons.

This soil is poorly suited to most urban uses. Very slow permeability is a severe limitation for septic tank absorption fields. This limitation is difficult to overcome. High shrink-swell is a severe limitation for dwellings and small commercial buildings. Low strength and high shrink-swell are severe limitations for local roads and streets. These limitations are usually difficult or expensive to overcome.

This soil is in capability subclass VIe and woodland suitability group 4c3.

45—Muskogee silt loam, 1 to 3 percent slopes. This nearly level, moderately well drained soil is on uplands and terraces. Individual areas range from about 20 to more than 200 acres.

Typically, the surface layer is dark brown silt loam about 3 inches thick. The subsurface layer is yellowish brown silt loam about 4 inches thick. The upper part of the subsoil is light yellowish brown silt loam to a depth of about 15 inches, the middle part is yellowish brown, mottled silt loam to a depth of about 32 inches, and the lower part is light brownish gray, mottled silty clay and red clay to a depth of 72 inches or more.

This soil is moderate in natural fertility and low in organic matter content. Reaction in the surface layer and upper part of the subsoil ranges from very strongly acid to medium acid except in areas that have been limed. Reaction in the lower part of the subsoil ranges from strongly acid to mildly alkaline. Permeability is slow, and available water capacity is high. A perched water table is within 1 foot to 2 feet of the surface during winter and early in spring.

Included with this soil in mapping are a few small areas of Acadia, Gore, McKamie, and Wrightsville soils. Also included are a few areas of soils that have slopes of more than 3 percent.

This soil is well suited to cultivated crops and winter small grains. The main crop is soybeans. Winter small grains are also grown. Erosion is a moderate limitation. Conservation practices, such as contour farming, minimum tillage, and the use of cover crops, reduce runoff and help to control erosion. This soil responds well to fertilization, and tilth is easy to maintain by returning crop residue to the soil. This soil is well suited to pasture and hayland. Adapted pasture plants are bermudagrass, bahiagrass, and tall fescue.

This soil is well suited to woodland. Adapted species are sweetgum, southern red oak, water oak, and loblolly pine. There are no significant limitations for woodland use or management.

This soil is poorly suited to most urban uses. Slow permeability and wetness are severe limitations for septic tank filter fields. High shrink-swell and wetness are severe limitations for dwellings and small commercial buildings. High shrink-swell and low strength are severe limitations for local roads and streets. All of these limitations can be overcome by proper engineering design and by installation of a drainage system.

This soil is in capability subclass IIe and woodland suitability group 3o7.

46—Muskogee silt loam, 3 to 8 percent slopes. This gently sloping, moderately well drained soil is on uplands and terraces. Individual areas range from about 20 to more than 200 acres.

Typically, the surface layer is dark brown silt loam about 3 inches thick. The subsurface layer is yellowish brown silt loam about 4 inches thick. The upper part of the subsoil is light yellowish brown silt loam to a depth of about 15 inches, the middle part is yellowish brown, mottled silt loam to a depth of about 32 inches, and the lower part is light brownish gray, mottled silty clay and red clay to a depth of 72 inches or more.

This soil is moderate in natural fertility and low in organic matter content. Reaction in the surface layer and upper part of the subsoil ranges from very strongly acid to medium acid except in areas that have been limed. Reaction in the lower part of the subsoil ranges from strongly acid to mildly alkaline. Permeability is slow, and available water capacity is high. A perched water table is within 1 foot to 2 feet of the surface during winter and early in spring.

Included with this soil in mapping are a few small areas of Acadia, Gore, McKamie, and Wrightsville soils.

This soil is moderately suited to cultivated crops and winter small grains. The main crop is soybeans. Winter small grains are also grown. Erosion is a severe limitation. Conservation practices, such as contour farming, minimum tillage, and the use of cover crops, reduce runoff and help to control erosion. These practices need to be intensified as slope length and gradient increase. This soil responds well to fertilization, and tilth is easy to maintain if crop residue is returned to the soil. This soil is well suited to pasture and hayland. Adapted pasture plants are bermudagrass, bahiagrass, and tall fescue.

This soil is well suited to woodland. Adapted species include sweetgum, southern red oak, water oak, and loblolly pine. There are no significant limitations for woodland use or management.

This soil is poorly suited to most urban uses. Slow permeability and wetness are severe limitations for septic tank filter fields. High shrink-swell potential and wetness are severe limitations for dwellings and small commercial buildings. High shrink-swell and low strength are severe limitations for local roads and streets. All of these limitations can be overcome by proper engineering design and by installation of a drainage system.

This soil is in capability subclass IIIe and woodland suitability group 3o7.

47—Oklared fine sandy loam, gently undulating. This deep, well drained, gently undulating soil is on low parallel ridges and swales. Individual areas range from 40 to 500 acres or more. Slopes range from 0 to 2 percent.

Typically, the surface layer is brown fine sandy loam about 6 inches thick. The underlying material to a depth of 70 inches or more is stratified, reddish brown, light reddish brown, and pink fine sandy loam and loamy fine sand.

This soil is high in natural fertility and low in organic matter content. Reaction is mildly alkaline or moderately alkaline and is calcareous throughout. Permeability is moderately rapid, and available water capacity is medium. Tilth is easy to maintain. A seasonal high water table is within 4 to 5 feet of the surface from late in winter through spring.

Included with this soil in mapping are small areas of Kiomatia and Severn soils. Also included are small areas of soils that have finer textures than Oklared soils in the surface layer and in the layers below a depth of 40 inches. The soils that have finer textures are in swales.

This soil is well suited to cultivated crops. Adapted crops are wheat, cotton, grain sorghum, and soybeans. Soybeans is the main row crop. The hazard of erosion is moderate if cultivated crops are grown. This soil is well suited to pasture, and it is mainly used for pasture. Adapted pasture plants are bermudagrass and tall fescue.

This soil is well suited to woodland. Adapted species are cottonwood, sycamore, pecan, black walnut, and sweetgum. There are no significant limitations for woodland use or management.

This soil is moderately suited or poorly suited to most urban uses. Wetness is a moderate limitation for septic tank absorption fields. Rare flooding is a severe limitation for dwellings and small commercial buildings and a moderate limitation for local roads and streets.

This soil is in capability subclass IIe and woodland suitability group 2o4.

48—Oklared fine sandy loam, occasionally flooded. This deep, well drained, gently undulating soil is on low parallel ridges and swales between the Red River and its levees. Individual areas range from 40 to 300 acres or more. Slopes range from 0 to 2 percent.

Typically, the surface layer is brown fine sandy loam about 6 inches thick. The underlying material to a depth of 70 inches or more is stratified, reddish brown, light reddish brown, and pink fine sandy loam and loamy fine sand.

This soil is high in natural fertility and low in organic matter content. Reaction is mildly alkaline or moderately alkaline and is calcareous throughout. Permeability is moderately rapid, and available water capacity is medium. A seasonal high water table is within 4 to 5 feet of the surface from late in winter through spring.

Included with this soil in mapping are small areas of Kiomatia and Severn soils. Also included are small areas of soils that have finer textures than Oklared soils in the surface layer and in the layers below a depth of 40 inches. The soils that have finer textures are in swales.

This soil is well suited to cultivated crops. The main crops are wheat, cotton, grain sorghum, and soybeans. Soybeans is the main row crop. Occasional flooding is a moderate limitation for farming. Flooding usually occurs during the period from January to June. This soil is well suited to pasture, and it is mainly used for pasture. Adapted pasture plants are bermudagrass and tall fescue.

This soil is well suited to woodland. Adapted species are cottonwood, sycamore, pecan, black walnut, and sweetgum. There are no significant limitations for woodland use or management.

This soil is poorly suited to all urban uses. Flooding is a severe limitation for septic absorption fields, dwellings, small commercial buildings, and local roads and streets. These limitations are usually difficult or impractical to overcome.

This soil is in capability subclass IIw and woodland suitability group 2o4.

49—Oktibbeha silt loam, 3 to 8 percent slopes. This moderately deep to deep, moderately well drained, gently sloping soil is on hilltops and hillsides in intermingled areas in the Blackland Prairies and Coastal Plains. Individual areas range from 10 to 200 acres or more.

Typically, the surface layer is grayish brown silt loam about 5 inches thick. The subsurface layer is dark brown silt loam to a depth of 9 inches. The upper part of the subsoil to a depth of about 12 inches is strong brown, mottled silty clay loam, the middle part to a depth of 32 inches is yellowish red clay or clay that is mottled in shades of gray, brown, or red, and the lower part to a depth of 37 inches is clay that is mottled in shades of gray and brown. Below this is marly clay and soft rippable chalk and marl.

This soil is low in natural fertility and organic matter content. Reaction ranges from very strongly acid to medium acid in the surface layer and subsoil and from neutral to moderately alkaline in the underlying material. The underlying material is usually calcareous. Permeability is very slow, and available water capacity is medium. This soil shrinks and cracks when it is dry and expands and the cracks seal when it is wet.

Included with this soil in mapping are a few small areas of Oktibbeha soils that have a clay surface layer and a few small areas of Kipling, Sumter, and Saffell soils.

This soil is poorly suited to cultivated crops. Runoff is medium to rapid, and the hazard of erosion is very severe. If this soil is cultivated on the contour and terraced on the long slopes, and if good management is

practiced, clean-tilled crops that leave large amounts of residue can be grown in a rotation system with pastures and hayland. Adapted crops are grain sorghum and small grains. This soil is moderately suited to pasture and hayland, and it is mainly used for pasture and hay. Adapted pasture plants are bahiagrass, hybrid bermudagrass, tall fescue, and white clover. The main limitation is poor trafficability for livestock during wet seasons. This limitation can be partially overcome by restricting grazing during the winter and spring.

This soil is well suited to woodland. Loblolly pine and eastern redcedar are adapted species. When this soil is wet, the clayey texture of the subsoil restricts the use of equipment in managing and harvesting trees. This restriction can be partially overcome by using special equipment and by planting and harvesting during the drier seasons.

This soil is poorly suited to most urban uses. Very slow permeability is a severe limitation for septic tank absorption fields. High shrink-swell is a severe limitation for dwellings and small commercial buildings. Low strength and high shrink-swell are severe limitations for local roads and streets. All of these limitations are usually difficult to overcome; however, they may be partially overcome by proper engineering design.

This soil is in capability subclass IVe and woodland suitability group 3c8.

50—Oktibbeha silt loam, 8 to 12 percent slopes. This moderately deep and deep, moderately well drained, moderately sloping soil is on hillsides in intermingled areas in the Blackland Prairies and Coastal Plains. Individual areas range from about 10 acres to 100 acres.

Typically, the surface layer is grayish brown silt loam about 5 inches thick. The subsurface layer is dark brown silt loam to a depth of about 9 inches. The upper part of the subsoil to a depth of about 12 inches is strong brown, mottled silty clay loam, the middle part to a depth of 32 inches is yellowish red clay or clay that is mottled in shades of gray, brown or red, and the lower part to a depth of about 37 inches is clay that is mottled in shades of gray and brown. Below this is marly clay and soft rippable chalk and marl.

This soil is low in natural fertility and organic matter content. Reaction ranges from very strongly acid to medium acid in the surface layer and subsoil and from neutral to moderately alkaline in the underlying material. The underlying material is usually calcareous. Permeability is very slow, and available water capacity is medium. This soil shrinks and cracks when it is dry and expands and the cracks seal when it is wet.

Included with this soil in mapping are a few small areas of Oktibbeha soils that have a clay surface layer and a few small areas of Kipling, Sumter, and Saffell soils.

This Oktibbeha soil is unsuitable for cultivated crops. Runoff is rapid, and the hazard of erosion is very severe. This soil is moderately suited to pasture, and it is mainly used for pasture. Adapted pasture plants are bahiagrass, bermudagrass, tall fescue, white clover, annual lespedeza, and sericea lespedeza. The main limitation is poor trafficability for livestock during the wet seasons. This limitation can be partially overcome by restricting grazing during winter and spring.

This soil is well suited to woodland. Loblolly pine and eastern redcedar are adapted species. When this soil is wet, the clayey texture of the subsoil restricts the use of equipment in managing and harvesting the tree crop, but this restriction can be partially overcome by using special equipment and by planting and harvesting during the drier seasons.

This soil is poorly suited to most urban uses. Very slow permeability is a severe limitation for septic tank absorption fields. High shrink-swell is a severe limitation for dwellings. High shrink-swell and slope are severe limitations for small commercial buildings. Low strength and shrink-swell are severe limitations for local roads and streets. All of these limitations are usually difficult to overcome; however, they may be partially overcome by proper engineering design.

This soil is in capability subclass VIe and woodland suitability group 3c8.

51—Ouachita silt loam, occasionally flooded. This deep, well drained, gently undulating soil is on natural levees of streams that drain the Ouachita Mountains and the Coastal Plains. Slopes are 0 to 3 percent. Individual areas range from 15 to 100 acres.

Typically, the surface layer is dark brown silt loam about 5 inches thick. The subsurface layer is dark yellowish brown silt loam to a depth of 18 inches. The upper part of the subsoil to a depth of about 28 inches is dark yellowish brown silt loam, and the lower part to a depth of about 62 inches is yellowish brown silt loam and fine sandy loam that has mottles in shades of brown and gray. The underlying material is dark yellowish brown, mottled fine sandy loam to a depth of 72 inches or more.

This soil is moderate in natural fertility and in organic matter content. Reaction is strongly acid or very strongly acid throughout except in areas that have been limed. Permeability is moderately slow, and available water capacity is high. This soil is subject to occasional flooding, usually between December and May.

Included with this soil in mapping are a few small areas of Sardis and Guyton soils. Also included are a few small eroded areas caused by floodwater scouring and few to many floodwater channels.

This Ouachita soil is well suited to cultivated crops. Soybeans, cotton, grain sorghum, and small grains are adapted crops. Surface runoff is slow, and the hazard of sheet erosion is slight. Occasional flooding is the main

limitation for cultivated crops. If good management is practiced, however, clean-tilled crops that leave large amounts of residue can be grown year after year. This soil is well suited to pasture and hayland. Adapted pasture plants are tall fescue, alfalfa, white clover, bermudagrass, and Pensacola bahiagrass.

This soil is well suited to woodland, and it is mainly used for tree production. Loblolly pine, sweetgum, and eastern cottonwood are adapted species. Wetness is a moderate limitation to use of equipment, but this limitation can be overcome by using special equipment or by harvesting and planting during the drier seasons.

This soil is poorly suited to most urban uses. Moderately slow permeability and flooding are severe limitations for septic tank filter fields. Flooding is a severe limitation for dwellings, small commercial buildings, and local roads and streets. Low strength is an additional severe limitation for local roads and streets. All of these limitations are difficult to overcome unless flood control structures are constructed.

This soil is in capability subclass IIw and woodland suitability group 1w8.

52—Ouachita and Ochlockonee soils, occasionally flooded. This map unit consists of deep, well drained, gently undulating soils on flood plains. Both Ouachita and Ochlockonee soils occur in an irregularly shaped pattern on the landscape. Individual areas of each soil are large enough to be mapped separately, but because of present and predicted use, they were mapped as one unit. Most mapped areas are made up of both soils, but a few areas have only one soil. Slopes range from 0 to 3 percent.

Ouachita soils make up about 50 percent of each mapped area. Typically, the surface layer is dark brown silt loam about 5 inches thick. The subsurface layer is dark yellowish brown silt loam to a depth of 18 inches. The upper part of the subsoil to a depth of about 28 inches is dark yellowish brown silt loam, and the lower part to a depth of about 62 inches is yellowish brown silt loam and fine sandy loam that has mottles in shades of brown and gray. The underlying material is dark yellowish brown fine sandy loam to a depth of 72 inches or more.

Ouachita soils are moderate in natural fertility and organic matter content. Reaction is very strongly acid or strongly acid throughout except in areas that have been limed. Permeability is moderately slow, and available water capacity is high.

Ochlockonee soils make up about 20 percent of each mapped area. Typically, the surface layer is dark yellowish brown fine sandy loam about 4 inches thick. The subsurface layer is dark yellowish brown fine sandy loam to a depth of about 12 inches. The underlying material is yellowish brown fine sandy loam and sandy loam to a depth of about 72 inches.

Ochlockonee soils are moderate in natural fertility and low in organic matter content. Reaction is very strongly acid or strongly acid. Permeability is moderately rapid, and available water capacity is medium. A seasonal high water table is within 3 to 4 feet of the surface during winter and spring.

The remaining 30 percent of this map unit consists of areas of Guyton and Sardis soils and areas that have slopes of more than 3 percent.

These soils are well suited to cultivated crops. Soybeans, cotton, grain sorghum, and small grains are adapted crops. Occasional flooding is the main limitation. Flooding usually occurs between December and May. These soils are well suited to pasture. Adapted pasture plants are tall fescue, white clover, bermudagrass, and bahiagrass. Most areas are used for pasture and woodland and as habitat for wildlife.

These soils are well suited to woodland, and they are mainly used for tree production. Adapted species are loblolly pine, sweetgum, and eastern cottonwood. Wetness is a moderate limitation to use of equipment on the Ouachita soils.

Ouachita soils have severe limitations for most urban uses. Low strength and the hazard of flooding are severe limitations for local roads and streets. Flooding is a severe limitation for dwellings and small commercial buildings. Moderately slow permeability and flooding are severe limitations for septic tank absorption fields. These limitations are usually difficult or impractical to overcome.

Ochlockonee soils have severe limitations for most urban uses. The hazard of flooding is a severe limitation for dwellings and small commercial buildings and for local roads and streets. Flooding and wetness are severe limitations for septic tank absorption fields. These limitations are usually difficult or impractical to overcome.

These soils are in capability subclass IIw. Ouachita soils are in woodland suitability group 1w8, and Ochlockonee soils are in woodland suitability group 1o7.

53—Perry clay, 0 to 1 percent slopes. This deep, level, poorly drained soil is on broad flats and in slack-water areas that were backswamps of the Red River. Individual areas range from 100 to 1,000 acres or more.

Typically, the surface layer is dark grayish brown, mottled clay about 5 inches thick. The upper part of the subsoil to a depth of 21 inches is dark gray, mottled clay, and the lower part to a depth of 32 inches is dark reddish brown, mottled clay. The underlying material is dark reddish brown and dark brown, mottled clay to a depth of 72 inches or more.

This soil is high in natural fertility and moderate in organic matter content. Reaction is strongly acid or medium acid in the surface layer and upper part of the subsoil and ranges from slightly acid to moderately alkaline in the lower part of the subsoil and underlying material. Permeability is very slow, and available water capacity is high. This soil shrinks and cracks when it is

dry and expands and the cracks seal when it is wet. The water table is seasonally high and is within 24 inches of the surface during winter and spring.

Included with this soil in mapping are a few areas of Billyhaw, Caspiana, Latanier, Rilla, and Yorktown soils. Also included are small areas of soils that have a dark reddish brown and strong brown surface layer and subsoil and small areas of soils where the reddish brown clay layers are below a depth of 36 inches.

This Perry soil is well suited to rice production, and it is moderately suited to cultivated row crops. The main crops are rice and soybeans. Cotton and grain sorghum are also grown. Farming operations are commonly delayed for several days after a rain because of wetness, and surface drainage is needed. Tilth is difficult to maintain because of the high clay content in the surface layer. Clods form on the surface if the soil is plowed when it is wet. This soil is moderately suited to pasture and hayland. Wetness is a limitation during winter and early in spring. Livestock severely damage pastures during the wet seasons. Adapted pasture plants are bermudagrass and tall fescue.

This soil is well suited to woodland. Adapted species are sweetgum and water oak. Wetness is a severe limitation to use of equipment in managing and harvesting the tree crop, but this limitation is usually overcome by logging during the dry seasons.

This soil is poorly suited to most urban uses. Very slow permeability and wetness are severe limitations for septic tank filter fields. High shrink-swell and wetness are severe limitations for dwellings and small commercial buildings. Low strength, high shrink-swell, and wetness are severe limitations for local roads and streets. All of these limitations are usually difficult or impractical to overcome.

This soil is in capability subclass IIIw and woodland suitability group 2w6.

54—Perry clay, frequently flooded. This deep, level, poorly drained soil is on flood plains and in slack-water areas that were backswamps of the Red River. Individual areas range from 50 to 500 acres or more. Slopes are dominantly less than 1 percent.

Typically, the surface layer is dark grayish brown, mottled clay about 5 inches thick. The upper part of the subsoil to a depth of 21 inches is dark gray, mottled clay, and the lower part to a depth of 32 inches is dark reddish brown, mottled clay. The underlying material is dark reddish brown and dark brown, mottled clay to a depth of 72 inches or more.

This soil is high in natural fertility and moderate in organic matter content. Reaction is strongly acid or medium acid in the surface layer and upper part of the subsoil and ranges from slightly acid to moderately alkaline in the lower part of the subsoil and underlying material. Permeability is very slow, and available water capacity is high. This soil shrinks and cracks when it is dry and expands and the cracks seal when it is wet. The water table is seasonally high and is within 24 inches of the surface during winter and spring. In most years flooding occurs between December and May.

Included with this soil in mapping are small areas of Caspiana, Billyhaw, and Rilla soils. Also included are small areas of soils that have a dark reddish gray and strong brown surface layer and subsoil and small areas of soils where the dark reddish brown clay layers are below a depth of 36 inches.

This Perry soil is poorly suited to cultivated crops because of frequent flooding. In most years flooding occurs between December and May. Crops that require a short growing season, such as soybeans, can be grown, but flooding is likely to damage the crop in some years. This soil is poorly suited to pasture and hayland. Flooding and wetness are the main limitations during winter and spring.

This soil is well suited to woodland, and it is mainly used for tree production. Adapted species include sweetgum, water oak, and eastern cottonwood. Wetness is a severe limitation to the use of equipment in managing and harvesting the tree crop, but this limitation is usually overcome by logging during the dry seasons. Severe seedling mortality due to wetness is a management concern.

This soil is severely limited for most urban uses. Flooding, wetness, and very slow permeability are severe limitations for septic tank filter fields. Flooding, wetness, and high shrink-swell are severe limitations for dwellings and small commercial buildings. Low strength, wetness, and flooding are severe limitations for local roads and streets. All of these limitations are usually difficult or impractical to overcome.

This soil is in capability subclass IVw and woodland suitability group 3w6.

55—Rilla silt loam, 0 to 1 percent slopes. This deep, well drained, level soil is on natural levees of former channels of the Red River. Individual areas are 20 to 1,000 acres or more.

Typically, the surface layer is dark brown silt loam about 7 inches thick. The upper part of the subsoil to a depth of 14 inches is brown silt loam, and the lower part to a depth of 59 inches is reddish brown and yellowish red silt loam. The underlying material to a depth of 80 inches or more is yellowish red silt loam that has thin strata of yellowish red silty clay loam.

This soil is moderate in natural fertility and low in organic matter content. Permeability is moderate, and available water capacity is high. Reaction ranges from medium acid to very strongly acid in the surface layer and is strongly acid or very strongly acid in the subsoil.

Included with this soil in mapping are a few small areas of Caspiana and Perry soils. Also included are small areas of soils that have clayey or sandy horizons below a depth of 36 inches.

This soil is well suited to row crops and winter small grains, and it is mainly used for cropland. There are no significant limitations for cropland use. The main crops are cotton (fig. 6) and soybeans (fig. 7). Grain sorghum, winter small grains, and corn are also grown. This soil warms early in spring and permits early plantings. It can be cultivated over a wide range of moisture conditions. Tilth is easy to maintain. This soil is well suited to pasture and hayland. Adapted pasture plants are bahiagrass, bermudagrass, and tall fescue.

This soil is well suited to woodland. Adapted species are American sycamore, cherrybark oak, and sweetgum. There are no significant limitations for woodland use or management.

This soil is moderately suited to most urban uses. Moderate permeability is a moderate limitation for septic tank filter fields. Moderate shrink-swell is a moderate limitation for dwellings and small commercial buildings. Low strength is a severe limitation for local roads and streets. All of these limitations can usually be overcome by proper engineering design.

This soil is in capability class I and woodland suitability group 2o4.

56—Rilla silt loam, gently undulating. This deep, well drained, gently undulating soil is on natural levees along former channels of the Red River. Slopes are 0 to 3 percent. Individual areas range from 20 to 500 acres or more.

Typically, the surface layer is dark brown silt loam about 7 inches thick. The upper part of the subsoil to a depth of 14 inches is brown silt loam, and the lower part to a depth of 59 inches is reddish brown and yellowish red silt loam. The underlying material to a depth of 80 inches or more is yellowish red silt loam that has thin strata of yellowish red silty clay loam.

This soil is moderate in natural fertility and organic matter content. Permeability is moderate, and available water capacity is high. Reaction ranges from medium acid to very strongly acid in the surface layer and is strongly acid or very strongly acid in the subsoil.

Included with this soil in mapping are small areas of soils that have slopes of more than 3 percent and a few areas of Caspiana soils. Also included are small areas of soils where the clayey horizons are below a depth of 36 inches.

This Rilla soil is well suited to row crops and winter small grains, and it is mainly used for cropland. The main crops are cotton and soybeans. Grain sorghum, winter small grains, and corn are also grown. This soil warms early in spring and permits early planting. It can be cultivated over a wide range of moisture conditions. Tilth is easy to maintain. The short side slopes of ridges are susceptible to moderate erosion. Minimum tillage, contour farming, and the use of cover crops help to reduce runoff and control erosion. This soil is well suited to pasture and hayland. Adapted pasture plants are bahiagrass, bermudagrass, and tall fescue.

This soil is well suited to woodland. Adapted species are American sycamore, cherrybark oak, and sweetgum. There are no significant limitations for woodland use or management.

This soil is moderately suited to most urban uses. Moderate permeability is a moderate limitation for septic tank filter fields. Moderate shrink-swell is a moderate limitation for dwellings and small commercial buildings. Low strength is a severe limitation for local roads and streets. All of these limitations can usually be overcome by proper engineering design.

This soil is in capability subclass IIe and woodland suitability group 2o4.

57—Ruston fine sandy loam, 2 to 5 percent slopes. This deep, well drained, nearly level to gently sloping soil is on terraces and hilltops in the Coastal Plains. Individual areas range from 10 to 500 acres.

Typically, the surface layer is dark brown fine sandy loam about 6 inches thick. The subsurface layer is light yellowish brown fine sandy loam to a depth of about 13 inches. The upper part of the subsoil to a depth of 37 inches is yellowish red and red sandy clay loam, the middle part to a depth of about 50 inches is yellowish red sandy loam that has pockets of pale brown sandy loam, and the lower part to a depth of 72 inches or more is yellowish red sandy clay loam and fine sandy loam.

This soil is low in natural fertility and organic matter content. Reaction is strongly acid or very strongly acid throughout. Permeability is moderate, and available water capacity is high.

Included with this soil in mapping are a few small areas of Bowie, Eylau, Sacul, and Smithdale soils. Also included are small areas of soils that have slopes of more than 5 percent.

This soil is well suited to cultivated crops. The main crops are soybeans and truck crops. Corn, cotton, and small grains are also grown. This soil is well suited to pasture and hayland, and it is mainly used for pasture and hay. Adapted pasture plants are bermudagrass, bahiagrass, and tall fescue. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage, contour farming, and the use of cover crops, including grasses and legumes in the cropping system, help to reduce runoff and control erosion.

This soil is well suited to woodland. Loblolly pine and shortleaf pine are adapted species. There are no significant limitations for woodland use or management.

This soil is well suited to most urban uses. Moderate permeability is a moderate limitation for septic tank absorption fields. Limitations are slight for dwellings and small commercial buildings. Low strength is a moderate limitation for local roads and streets, but it can be overcome by modifying the design during construction.

Figure 6.—Young cotton on Rilla silt loam, 0 to 1 percent slopes.

This soil is in capability subclass IIe and woodland suitability group 3o1.

58—Sacul fine sandy loam, 1 to 3 percent slopes. This deep, moderately well drained, nearly level soil is on hilltops in the Coastal Plains. Individual areas range from 20 to 1,000 acres.

Typically, the surface layer is dark grayish brown fine sandy loam about 2 inches thick. The subsurface layer is yellowish brown fine sandy loam to a depth of 9 inches. The upper part of the subsoil is red silty clay to a depth of 20 inches, the middle part is red, mottled clay and silty clay to a depth of 42 inches, and the lower part is red, mottled silty clay loam to a depth of 57 inches. The underlying material to a depth of 72 inches or more is stratified, red and gray fine sandy loam and clay loam.

This soil is low in natural fertility and organic matter content. Reaction is strongly acid or very strongly acid throughout. Permeability is slow, and available water capacity is high. A seasonal high water table is within 2 to 4 feet of the surface during winter and spring.

Included with this soil in mapping are a few areas of Bowie, Eylau, Ruston, Sawyer, and Smithdale soils. Also included are small areas of soils that have slopes of more than 3 percent and small areas of soils that have sandy clay in the subsoil.

This Sacul soil is moderately suited to cultivated row crops. Runoff is medium, and the hazard of erosion is severe. Minimum tillage, contour farming, and the use of cover crops help to reduce runoff and control erosion. This soil is well suited to pasture and hayland. Adapted pasture plants are bermudagrass and bahiagrass.

This soil is well suited to woodland, and it is mainly used for tree production. Adapted species are loblolly pine and shortleaf pine. Erosion is a moderate limitation for woodland use and management.

This soil is poorly suited to most urban uses. Slow permeability and wetness are severe limitations for septic tank absorption fields. High shrink-swell is a severe limitation for dwellings, small commercial

Figure 7.—Soybeans on Rilla silt loam, 0 to 1 percent slopes.

buildings, and local roads and streets. Low strength is an additional severe limitation for local roads and streets. All of these limitations are usually difficult or impractical to overcome and would require special engineering.

This soil is in capability subclasss IIIe and woodland suitability group 3c2.

59—Sacul fine sandy loam, 3 to 8 percent slopes. This deep, moderately well drained, gently sloping soil is on hillsides and hilltops in the Coastal Plains. Individual areas range from 10 to 400 acres or more.

Typically, the surface layer is dark grayish brown fine sandy loam about 2 inches thick. The subsurface layer is yellowish brown fine sandy loam to a depth of 9 inches. The upper part of the subsoil is red silty clay to a depth of 20 inches, the middle part is red, mottled clay and silty clay to a depth of 42 inches, and the lower part is red, mottled silty clay loam to a depth of 57 inches. The underlying material is stratified, red and gray fine sandy loam and clay loam to a depth of 72 inches or more.

This soil is low in natural fertility and organic matter content. Reaction is strongly acid or very strongly acid throughout. Permeability is slow, and available water capacity is high. A seasonal high water table is within 2 to 4 feet of the surface during winter and spring.

Included with this soil in mapping are a few areas of Bowie, Eylau, Sawyer, and Smithdale soils. Also included are small areas of soils that have slopes of more than 8 percent and small areas of soils that have sandy clay in the subsoil.

This Sacul soil is poorly suited to cultivated row crops. Runoff is rapid, and the hazard of erosion is very severe. Minimum tillage, contour farming, and the use of cover crops help to reduce runoff and control erosion. This soil is well suited to pasture (fig. 8) and hayland. Adapted pasture plants are bermudagrass and bahiagrass.

Figure 8.—Pasture on Sacul fine sandy loam, 3 to 8 percent slopes. Sacul soils produce good forage for livestock.

This soil is well suited to woodland, and it is mainly used for tree production. Adapted species are loblolly pine and shortleaf pine. Erosion is a moderate limitation for woodland use and management.

This soil is poorly suited to most urban uses. Slow permeability and wetness are severe limitations for septic tank filter fields. High shrink-swell is a severe limitation for dwellings, small commercial buildings, and local roads and streets. Low strength is an additional severe limitation for local roads and streets. All of these limitations are difficult or impractical to overcome and would require special engineering design.

This soil is in capability subclass IVe and woodland suitability group 3c2.

60—Sacul fine sandy loam, 8 to 12 percent slopes. This deep, moderately well drained, moderately sloping soil is on hillsides in the Coastal Plains. Individual areas range from 10 to 400 acres or more.

Typically, the surface layer is dark grayish brown fine sandy loam about 2 inches thick. The subsurface layer is yellowish brown fine sandy loam to a depth of 9 inches. The upper part of the subsoil is red silty clay to a depth of 20 inches, the middle part is red, mottled clay and silty clay to a depth of 42 inches, and the lower part is red, mottled silty clay loam to a depth of 57 inches. The underlying material is stratified, red and gray fine sandy loam and clay loam to a depth of 72 inches or more.

This soil is low in natural fertility and organic matter content. Reaction is strongly acid or very strongly acid throughout. Permeability is slow, and available water capacity is high. A seasonal high water table is within 2 to 4 feet of the surface during winter and spring.

Included with this soil in mapping are a few small areas of Bowie, Eylau, Sawyer, and Smithdale soils. Also included are a few small areas of eroded soils and a few small areas of soils that have slopes of more than 12 percent.

This Sacul soil is not suited to cultivated crops. Runoff is rapid, and the hazard of erosion is severe. This soil is moderately suited to pasture. Adapted pasture plants are bermudagrass and bahiagrass. If this soil is used for pasture, proper stocking, controlled grazing, and weed and brush control are management concerns.

This soil is well suited to woodland, and it is mainly used for tree production. Adapted species are loblolly pine and shortleaf pine. Erosion is a moderate limitation to woodland use and management. Constructing logging trails on the contour and immediate reforesting of harvested areas reduce the hazard of erosion.

This soil is poorly suited to most urban uses. Slow permeability and wetness are severe limitations for septic tank filter fields. High shrink-swell is a severe limitation for dwellings, small commercial buildings, and local roads and streets. Slope is an additional severe limitation for small commercial buildings, and low strength is an additional severe limitation for local roads and streets. All of these limitations are usually difficult or impractical to overcome and require special engineering design.

This soil is in capability subclass VIe and woodland suitability group 3c2.

61—Sacul fine sandy loam, 12 to 20 percent slopes. This deep, moderately well drained, moderately steep soil is on hillsides in the Coastal Plains. Individual areas range from 10 to 400 acres or more.

Typically, the surface layer is dark grayish brown fine sandy loam about 2 inches thick. The subsurface layer is yellowish brown fine sandy loam to a depth of 9 inches. The upper part of the subsoil is red silty clay to a depth of 20 inches, the middle part is red, mottled clay and silty clay to a depth of 42 inches, and the lower part is red, mottled silty clay loam to a depth of 57 inches. The underlying material is stratified, red and gray fine sandy loam and clay loam to a depth of 72 inches or more.

This soil is low in natural fertility and organic matter content. Permeability is slow, and available water capacity is high. Reaction is strongly acid or very strongly acid throughout. A seasonal high water table is within 2 to 4 feet of the surface during winter and spring.

Included with this soil in mapping are a few small areas of Bowie, Eylau, and Smithdale soils. Also included are a few small areas of eroded soils and a few small areas of soils that have slopes of more than 20 percent.

This Sacul soil is unsuited to cultivated crops. Runoff is rapid, and the hazard of erosion is very severe. This soil is poorly suited to pasture. Steep slopes are a limitation to effective pasture management. Adapted pasture plants include bermudagrass and bahiagrass. If this soil is used for pasture, proper stocking and controlled grazing are management concerns.

This soil is used mainly for woodland. It is well suited to loblolly pine and shortleaf pine. If the surface layer has been disturbed, erosion of logging trails and harvested areas is a moderate hazard. Constructing logging trails on the contour and immediate reforesting of harvested areas reduce the hazard of erosion.

This soil is poorly suited to most urban uses. Slow permeability, wetness, and slope are severe limitations for septic tank absorption fields. High shrink-swell and slopes are severe limitations for dwellings, small commercial buildings, and local roads and streets. Low strength is an additional severe limitation for local roads and streets.

This soil is in capability subclass VIe and woodland suitability group 3c2.

62—Sacul fine sandy loam, 20 to 40 percent slopes. This deep, moderately well drained, steep soil is on hillsides in the Coastal Plains. Individual areas range from 10 to 80 acres or more.

Typically, the surface layer is dark grayish brown fine sandy loam about 2 inches thick. The subsurface layer is

yellowish brown fine sandy loam to a depth of 9 inches. The upper part of the subsoil is red silty clay to a depth of 20 inches, the middle part is red, mottled clay and silty clay to a depth of 42 inches, and the lower part is red, mottled silty clay loam to a depth of 57 inches. The underlying material is stratified, red and gray fine sandy loam and clay loam to a depth of 72 inches or more.

This soil is low in natural fertility and organic matter content. Permeability is slow, and available water capacity is high. Reaction is strongly acid or very strongly acid throughout. A seasonal high water table is within 2 to 4 feet of the surface during winter and spring.

Included with this soil in mapping are a few small intermingled areas of Bowie, Eylau, and Smithdale soils. Also included are a few small areas of eroded areas, a few small areas of soils that have slopes of less than 20 percent, and a few small areas of soils that have slopes of more than 40 percent.

This Sacul soil is not suited to cultivated crops and pasture. The hazard of erosion is very severe, and steep slopes severely restrict cropland or pasture management.

This soil is used mainly as woodland. It is well suited to loblolly pine and shortleaf pine. If the surface layer has been disturbed, erosion of logging trails and harvested areas is a moderate hazard. Constructing the logging trails on the contour and immediate reforesting of the harvested areas reduce the hazard of erosion. Steep slopes are a moderate limitation for the operation of logging equipment and woodland management.

This soil is poorly suited to most urban uses. Slow permeability, wetness, and slope are severe limitations for septic tank absorption fields. High shrink-swell and slope are severe limitations for dwellings, small commercial buildings and local roads and streets. Low strength is an additional severe limitation for local roads and streets. All of these limitations are usually difficult or impractical to overcome and would require special engineering design.

This soil is in capability subclass VIIe and woodland suitability group 3c2.

63—Sacul-Urban land complex, 3 to 8 percent slopes. This moderately well drained, gently sloping complex consists of Sacul soils and areas of land modified by urban development in the city of Texarkana. The developed areas are mainly made up of Sacul soils. Most areas range from 10 to 80 acres. The areas of Sacul soil and Urban land are so intricately mixed that it was not feasible to map them separately at the scale selected for mapping.

Sacul soils make up about 50 to 75 percent of this map unit. Typically, the surface layer is dark grayish brown fine sandy loam about 2 inches thick. The subsurface layer is yellowish brown fine sandy loam to a depth of 9 inches. The upper part of the subsoil is red silty clay to a depth of 20 inches, the middle part is red, mottled clay and silty clay to a depth of 42 inches, and the lower part is red, mottled silty clay loam to a depth of 57 inches. The underlying material is stratified, red and gray fine sandy loam and clay loam to a depth of 72 inches or more.

The Sacul soil is low in natural fertility and organic matter content. Reaction is strongly acid or very strongly acid throughout. Permeability is slow, and available water capacity is high. A seasonal high water table is within 2 to 4 feet of the surface during winter and spring.

Urban land makes up 25 to 50 percent of the map unit. Urban land consists of soils that have been so altered or obscured by buildings or other structures that classification of the soils is impractical. Typical structures are single and multiple unit dwellings, streets, parking lots, shopping centers of less than 40 acres, and industrial sites.

Included with this complex in mapping are a few intermingled areas of Sawyer, Eylau, Ruston, and Bowie soils. Also included are areas of Sacul soils and other soils that have been altered by cutting, grading, and filling. Urban land makes up more than 50 percent of the map unit in a few areas.

This Sacul soil is poorly suited to most urban uses. Low strength and high shrink-swell are severe limitations for local roads and streets. Slow permeability and wetness are severe limitations for septic tank absorption fields. High shrink-swell is a severe limitation for dwellings and small commercial buildings. All of these limitations are usually difficult to overcome and require special engineering design.

This complex is not assigned to a capability subclass or a woodland suitability group.

64—Saffell gravelly fine sandy loam, 1 to 3 percent slopes. This deep, well drained, nearly level soil is on narrow hilltops in the Coastal Plains. Individual areas range from 20 to 300 acres or more.

Typically, the surface layer is dark yellowish brown gravelly fine sandy loam about 6 inches thick. The subsoil to a depth of about 60 inches is yellowish brown and strong brown very gravelly fine sandy loam. The underlying material to a depth of 72 inches or more is yellowish red very gravelly sandy clay loam that has mottles of red and pale brown.

This soil is low in natural fertility and organic matter content. Reaction is strongly acid or very strongly acid throughout. Permeability is moderate, and available water capacity is low. Tilth is difficult to maintain because of the high gravel content. Crops respond well to fertilization.

Included with this soil in mapping are a few small areas of Sacul, Ruston, and Bowie soils. Also included are small areas of soils that decrease in gravel and increase in clay but otherwise are similar to the Saffell soils.

This Saffell soil is moderately suited to most cultivated crops and to fruit crops, such as peaches. Peaches and small grains are the main crops. The high gravel content of this soil makes tillage difficult. Droughtiness is a moderate to severe limitation for most cultivated crops. Runoff is medium, and the hazard of erosion is moderate. If good management that includes minimum tillage, contour cultivation, and terracing is practiced, clean-tilled crops that leave large amounts of residue can be grown year after year. More intensive management is needed in areas where the slope gradient increases. This soil is well suited to pasture and hayland, and it is mainly used for pasture and hay. Adapted pasture plants are bermudagrass, Pensacola bahiagrass, crimson clover, and sericea lespedeza. Droughtiness is the main limitation for forage production.

This soil is moderately suited to woodland. Adapted species are loblolly pine, shortleaf pine, and eastern redcedar. Moderate seedling mortality is a concern in woodland use and management.

This soil is well suited to most urban uses. There are no significant limitations for small commercial buildings, dwellings, or local roads and streets. Moderate permeability is a moderate limitation for septic tank filter fields, but this limitation can usually be overcome by proper engineering design. This Saffell soil is an important source of gravel for construction.

This soil is in capability subclass IIe and woodland suitability group 4f2.

65—Saffell gravelly fine sandy loam, 3 to 8 percent slopes. This deep, well drained, gently sloping soil is on hillsides in the Coastal Plains. Individual areas range from 20 to 300 acres or more.

Typically, the surface layer is dark yellowish brown gravelly fine sandy loam about 6 inches thick. The subsoil is yellowish brown and strong brown very gravelly fine sandy loam to a depth of about 60 inches. The underlying material to a depth of 72 inches or more is yellowish red very gravelly sandy clay loam that has mottles of red and pale brown.

This soil is low in natural fertility and organic matter content. Reaction is strongly acid or very strongly acid throughout. Permeability is moderate, and available water capacity is low. Tilth is difficult to maintain because of the high gravel content. Crops respond well to fertilization.

Included with this soil in mapping are a few small areas of Sacul, Ruston, and Bowie soils. Also included are small areas of soils that decrease in gravel and increase in clay but otherwise are similar to the Saffell soils.

This Saffell soil is moderately suited to most cultivated crops and to fruit crops, such as peaches. Peaches and small grains are the main crops. The high gravel content of this soil makes tillage difficult. Droughtiness is a moderate to severe limitation for most cultivated crops. Runoff is medium, and the hazard of erosion is moderate to severe. If good management that includes minimum tillage, contour cultivation, and terracing is practiced, clean-tilled crops that leave large amounts of residue can be grown year after year. In areas where the slope gradient increases, more intensive management is needed. This soil is well suited to pasture and hayland, and it is mainly used for pasture and hay. Adapted pasture plants include bermudagrass, Pensacola bahiagrass, crimson clover, and sericea lespedeza. Droughtiness is the main limitation for forage production.

This soil is moderately suited to woodland. Adapted species are loblolly pine, shortleaf pine, and eastern redcedar. Moderate seedling mortality is a concern in the use and management of woodland.

This soil is well suited or moderately suited to most urban uses. There are no significant limitations for dwellings or local roads and streets. Slope is a moderate limitation for small commercial buildings. Moderate permeability is a moderate limitation for septic tank filter fields. These limitations can usually be overcome by proper design. This Saffell soil is an important source of gravel for construction.

This soil is in capability subclass IIIe and woodland suitability group 4f2.

66—Saffell gravelly fine sandy loam, 8 to 12 percent slopes. This deep, well drained, moderately sloping soil is on hillsides in the Coastal Plains. Individual areas range from 20 to 200 acres or more.

Typically, the surface layer is dark yellowish brown gravelly fine sandy loam about 6 inches thick. The subsoil is yellowish brown and strong brown very gravelly fine sandy loam to a depth of about 60 inches. The underlying material to a depth of 72 inches or more is yellowish red very gravelly sandy clay loam that has mottles of red and pale brown.

This soil is low in natural fertility and organic matter content. Reaction is strongly acid or very strongly acid throughout. Permeability is moderate, and available water capacity is low. Tilth is difficult to maintain because of the high gravel content. Crops respond well to fertilization.

Included with this soil in mapping are a few small areas of Sacul, Ruston, and Bowie soils. Also included are small areas of soils that decrease in gravel and increase in clay but otherwise are similar to the Saffell soils.

This soil is poorly suited to most cultivated crops. Fruit crops, such as peaches, are moderately suited. Peaches and small grains are the main crops. The high gravel content of this soil makes tillage difficult. Droughtiness is a moderate to severe limitation for most cultivated crops. Runoff is medium to rapid, and the hazard of erosion is very severe. Miminum tillage, terracing, and the use of cover crops help to reduce runoff and control erosion. In areas where the slope gradient increases, more intensive

management is needed. This soil is moderately suited to pasture and hayland, and it is mainly used for pasture and hay. Adapted pasture plants are bermudagrass, Pensacola bahiagrass, crimson clover, and sericea lespedeza. Droughtiness is the main limitation for forage production.

This soil is moderately suited to woodland. Adapted species are loblolly pine, shortleaf pine, and eastern redcedar. Moderate seedling mortality is a concern in woodland use and management.

This soil is moderately suited to most urban uses. Slope is a moderate limitation for septic tank absorption fields, dwellings, and local roads and streets and a severe limitation for small commercial buildings. Moderate permeability is an additional moderate limitation for septic tank filter fields. All of these limitations can usually be overcome by proper engineering design. This Saffell soil is an important source of gravel for construction.

This soil is in capability subclass IVe and woodland suitability group 4f2.

67—Sardis silt loam, occasionally flooded. This deep, somewhat poorly drained, nearly level soil is on flood plains in the Coastal Plains. Slopes are 0 to 3 percent. Individual areas range from 20 to over 200 acres.

Typically, the surface layer is brown silt loam about 7 inches thick. The subsoil is dark yellowish brown and yellowish brown, mottled silt loam and silty clay loam to a depth of about 48 inches. The underlying material is strong brown, mottled sandy clay loam to a depth of 72 inches or more.

This soil is moderate in natural fertility and low in organic matter content. Reaction ranges from medium acid to very strongly acid throughout. Permeability is moderate, and available water capacity is high. The water table is seasonally high and is within 12 to 36 inches of the surface late in winter and early in spring. In some years this soil is subject to occasional flooding from December to May.

Included with this soil in mapping are a few small areas of Ouachita, Ochlockonee, and Guyton soils.

This Sardis soil is well suited to cultivated crops. The main crops are soybeans and grain sorghum. Small grains and cotton are also grown. Runoff is slow, and the hazard of erosion is moderate on sloping areas. If good management is practiced, clean-tilled crops that leave large amounts of residue can be grown yearly. Minimum tillage reduces erosion and helps to maintain organic matter content. Occasional flooding and wetness are the main limitations. This soil is well suited to pasture and hay. Adapted pasture plants are tall fescue, alfalfa, white clover, bermudagrass, and Pensacola bahiagrass.

This soil is well suited to woodland, and it is mainly used for tree production. Loblolly pine and sweetgum are adapted species. Wetness is a moderate limitation to use of equipment, but using special equipment or planting and harvesting during the drier seasons generally can overcome this limitation. Wetness is a moderate limitation to seedling survival.

This soil is poorly suited to most urban uses. Wetness and flooding are severe limitations for septic tank filter fields, for dwellings, and for small commercial buildings. Low strength and flooding are severe limitations for local roads and streets. These limitations are difficult to overcome unless flood-control structures are built, and drainage systems are installed.

This soil is in capability subclass IIw and woodland suitability group 1w8.

68—Sardis silt loam, frequently flooded. This deep, somewhat poorly drained, nearly level soil is on flood plains in the Coastal Plains. Slopes are gently udulating and range from 0 to 3 percent. Individual areas range from 10 to 500 acres.

Typically, the surface layer is brown silt loam about 7 inches thick. The subsoil is dark yellowish brown and yellowish brown, mottled silt loam and silty clay loam to a depth of about 48 inches. The underlying material is strong brown, mottled sandy clay loam to a depth of 72 inches or more.

This soil is moderate in natural fertility and low in organic matter content. Reaction ranges from medium acid to very strongly acid throughout. Permeability is moderate, and available water capacity is high. The water table is seasonally high and is within 12 to 36 inches of the surface from late in winter to early in spring. This soil is subject to frequent flooding from December to May.

Included with this soil in mapping are a few small areas of Ochlockonee, Ouachita, and Guyton soils. Also included are a few small areas of eroded soils. The erosion was caused by floodwater scouring and few to many floodwater relief channels.

This Sardis soil is poorly suited to cultivated crops because of the hazard of frequent flooding. In most years the flooding occurs between December and May. Crops, such as soybeans that require a short growing season, can be grown, but in some years flooding may damage the crop. This soil is moderately suited to pasture. Adapted pasture plants are tall fescue, white clover, bermudagrass, and Pensacola bahiagrass. Wetness and the hazard of flooding are the main limitations for pasture plants.

This soil is well suited to woodland, and it is mainly used for tree production. Loblolly pine and sweetgum are adapted species. Wetness is a moderate limitation to use of equipment, but using special equipment or planting and harvesting during the drier seasons generally can overcome this limitation. Wetness is a moderate limitation to seedling survival.

This soil is severely limited for most urban uses. Wetness and frequent flooding are severe limitations for

septic tank filter fields, for dwellings, and for small commercial buildings. Low strength and flooding are severe limitations for local roads and streets. These limitations are difficult to overcome unless flood-control structures are built, and drainage systems are installed.

This soil is in capability subclass IVw and woodland suitability group 1w8.

69—Sawyer silt loam, 1 to 3 percent slopes. This deep, moderately well drained, nearly level soil is on hilltops in the Coastal Plains. Individual areas range from 20 to 1,000 acres or more.

Typically, the surface layer is dark grayish brown silt loam about 5 inches thick. The upper part of the subsoil to a depth of about 17 inches is yellowish brown, mottled silt loam and silty clay loam, the middle part to a depth of 28 inches is yellowish brown silty clay loam mottled in shades of brown, gray, and red, and the lower part to a depth of 80 inches or more is mottled gray, red, and brown clay.

This soil is low in natural fertility and organic matter content. Reaction is strongly acid or very strongly acid throughout. Permeability is slow, and available water capacity is high. A seasonal perched water table is within 24 to 36 inches of the surface from late in winter to early in spring. Tilth is easy to maintain, and crops respond well to fertilizer.

Included with this soil in mapping are a few intermingled areas of Bowie, Eylau, and Sacul soils. Also included are a few areas of soils that have slopes of more than 3 percent.

This Sawyer soil is well suited to farming. Runoff is slow to medium, and the hazard of erosion is moderate. The main cultivated crops are grain sorghum and soybeans. Winter small grains are also grown. If contour cultivation, minimum tillage, and good management are practiced, clean-tilled crops that leave large amounts of residue can be grown yearly. Seasonal wetness is a slight limitation, but this limitation can generally be overcome by proper drainage. This soil is well suited to pasture, and it is mainly used for pasture. Adapted pasture plants are bermudagrass, bahiagrass, tall fescue, and white clover.

This soil is well suited to loblolly pine. Wetness is a moderate limitation to use of equipment in managing and harvesting the tree crop, but using special equipment or logging and planting during the drier seasons generally can overcome this limitation.

This soil is poorly suited to most urban uses. Slow permeability and wetness are severe limitations to septic tank filter fields. High shrink-swell is a severe limitation to dwellings and small commercial buildings. Low strength and high shrink-swell are severe limitations to local roads and streets. All of these limitations are generally difficult to overcome, and special design is usually required.

This soil is in capability subclass IIe and woodland suitability group 2w8.

70—Sawyer silt loam, 3 to 8 percent slopes. This deep, moderately well drained, gently sloping soil is on hillsides in the Coastal Plains. Individual areas range from 20 to 400 acres or more.

Typically, the surface layer is dark grayish brown silt loam about 5 inches thick. The upper part of the subsoil to a depth of about 17 inches is yellowish brown, mottled silt loam and silty clay loam, the middle part to a depth of 28 inches is yellowish brown silty clay loam mottled in shades of gray and red, and the lower part to a depth of 72 inches or more is mottled gray, red, and brown.

This soil is low in natural fertility and organic matter content. Reaction is strongly acid or very strongly acid throughout. Permeability is slow, and available water capacity is high. A seasonal perched water table is within 24 to 36 inches of the surface from late in winter to early in spring. Tilth is easy to maintain, and crops respond well to fertilizer.

Included with this soil in mapping are a few intermingled areas of Bowie, Eylau, and Sacul soils.

This Sawyer soil is moderately suited to cultivated crops. Runoff is medium, and the hazard of erosion is severe. The main cultivated crops are grain sorghum and soybeans. Winter small grains are also grown. Minimum tillage, contour cultivation, and terracing of long slopes reduce the hazard of erosion. Clean-tilled crops that leave large amounts of residue reduce the hazard of erosion and help to maintain tilth. This soil is well suited to pasture, and it is mainly used for pasture. Adapted pasture plants are bahiagrass, bermudagrass, and tall fescue.

This soil is well suited to loblolly pine. Wetness is a moderate limitation to use of equipment in managing and harvesting the tree crop, but logging during the dry seasons helps to overcome this limitation.

This soil is poorly suited to most urban uses. Slow permeability and wetness are severe limitations for septic tank filter fields. Wetness and high shrink-swell are severe limitations for dwellings and small commercial buildings. Low strength and high shrink-swell are severe limitations for local roads and streets. These limitations are generally difficult to overcome, and special design is usually required.

This soil is in capability subclass IIIe and woodland suitability group 2w8.

71—Severn silt loam, 0 to 1 percent slopes. This deep, well drained, level soil is on flood plains along the Red River. Individual areas range from 50 to 500 acres.

Typically, the surface layer is dark brown silt loam about 5 inches thick. The underlying material to a depth of 74 inches or more is stratified, reddish yellow or reddish brown silt loam, very fine sandy loam, and fine sandy loam.

This soil is high in natural fertility and low in organic matter content. Reaction is mildly alkaline or moderately alkaline throughout. Permeability is moderately rapid, and available water capacity is medium.

Included with this soil in mapping are small areas of Kiomatia and Oklared soils. Also included are small areas of soils that have finer textures than Severn soil in the surface layer and in the layers below a depth of 40 inches. Areas of soils that have very fine sandy loam and fine sandy loam surface layers are also included.

This Severn soil is well suited to cultivated crops, and it is mainly used for cropland. Adapted crops are soybeans (fig. 9), cotton (fig. 10), grain sorghum, and small grains. Sheet erosion is a slight hazard. This soil is well suited to pasture and hayland. Adapted pasture plants are bermudagrass, alfalfa, and bahiagrass.

This soil is well suited to woodland. Eastern cottonwood, pecan, sycamore, and sweetgum are adapted species. There are no significant limitations for woodland use and management.

This soil is moderately suited or poorly suited to most urban uses. Rare flooding is a moderate limitation for septic tank filter fields and local roads and streets and a severe limitation for dwellings and small commercial buildings. These limitations are usually difficult or impractical to overcome.

This soil is in capability class I and woodland suitability group 2o4.

72—Severn silt loam, gently undulating. This deep, well drained, gently undulating soil is on flood plains along the Red River. Slopes are 0 to 3 percent. Individual areas range from 50 to 500 acres.

Typically, the surface layer is dark brown silt loam about 5 inches thick. The underlying material to a depth of 74 inches or more is stratified, reddish yellow or reddish brown silt loam, very fine sandy loam, and fine sandy loam.

This soil is high in natural fertility and low in organic matter content. Reaction is mildly alkaline or moderately alkaline throughout. Permeability is moderately rapid, and available water capacity is medium.

Included with this soil in mapping are small areas of Kiomatia and Oklared soils. Also included are small areas of soils that have finer textures than Severn soil in the surface layer and in the layers below a depth of 40 inches. Areas of soils that have very fine sandy loam and fine sandy loam surface layers are also included.

This soil is well suited to cultivated crops. Adapted crops are soybeans, cotton, grain sorghum, and small grains. Runoff is slow, and the hazard of erosion is moderate. If good management is used, clean-tilled crops that leave a large amount of residue can be grown yearly. This soil is well suited to pasture and hayland, and it is mainly used for pasture and hay. Adapted pasture plants are bermudagrass, alfalfa, and bahiagrass.

This soil is well suited to woodland. Eastern cottonwood, pecan, sycamore, and sweetgum are adapted species. There are no significant limitations for woodland use and management.

This soil is moderately suited or poorly suited to most urban uses. Rare flooding is a moderate limitation for local roads and streets and septic tank filter fields and a severe limitation for dwellings and small commercial buildings. These limitations are usually difficult or impractical to overcome.

This soil is in capability subclass IIe and woodland suitability group 2o4.

73—Severn silt loam, occasionally flooded. This deep, well drained, gently undulating soil is on flood plains along the Red River. Slopes are 0 to 3 percent. Individual areas range from 50 to 500 acres.

Typically, the surface layer is dark brown silt loam about 5 inches thick. The underlying material to a depth of 74 inches or more is stratified, reddish yellow or reddish brown silt loam, very fine sandy loam, and fine sandy loam.

This soil is high in natural fertility and low in organic matter content. Reaction is mildly alkaline or moderately alkaline throughout. Permeability is moderately rapid, and available water capacity is medium. This soil is subject to occasional flooding, generally in winter and spring.

Included with this soil in mapping are small areas of Kiomatia and Oklared soils. Also included are small areas of soils that have finer textures than Severn soils in the surface layer and in the layers below a depth of 40 inches. A few areas of soils that have very fine sandy loam and fine sandy loam surface layers are also included.

This Severn soil is well suited to cultivated crops. Soybeans, cotton, grain sorghum, and wheat are adapted crops. Runoff is slow, and sheet erosion is a slight hazard. Flooding is the main limitation for cultivated crops. If good management is used, clean-tilled crops that leave a large amount of residue can be grown yearly. This soil is well suited to pasture and hayland, and it is mainly used for pasture and hay. Adapted pasture plants are bermudagrass, bahiagrass, and alfalfa.

This soil is well suited to woodland. Eastern cottonwood, pecan, sycamore, and sweetgum are adapted species. There are no significant limitations for woodland use and management.

This soil is severely limited for urban uses. Occasional flooding is a severe limitation for dwellings, small commercial buildings, septic tank absorption fields, and local roads and streets. These limitations are usually difficult or impractical to overcome unless flood control structures are built.

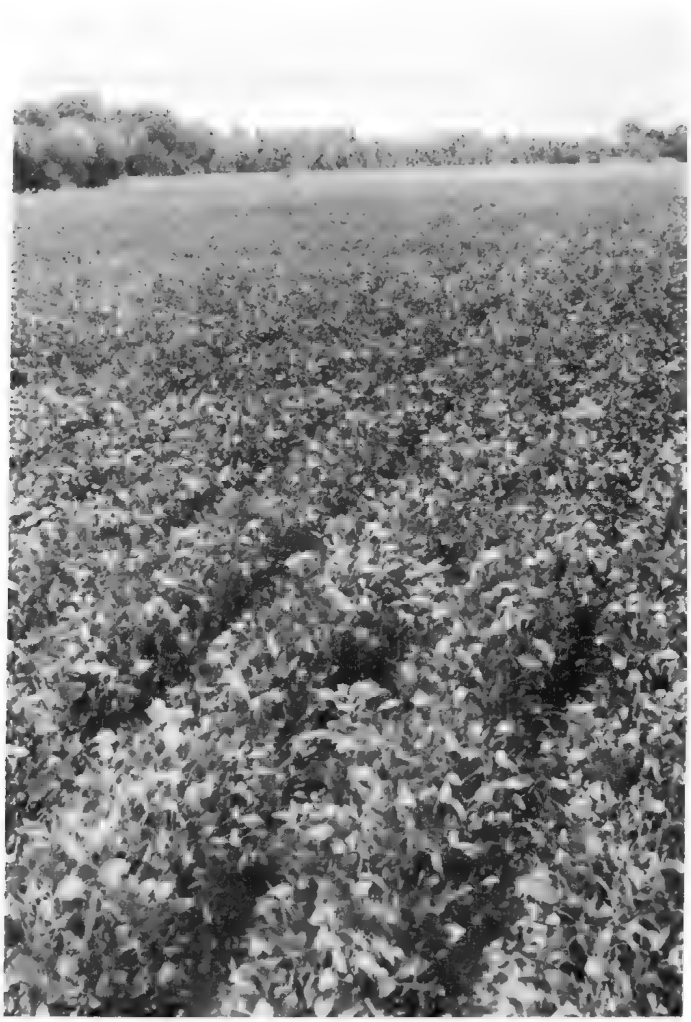


Figure 9.—Soybeans on Severn silt loam, 0 to 1 percent slopes.

This soil is in capability subclass IIw and woodland suitability group 2o4.

74—Smithdale fine sandy loam, 5 to 8 percent slopes. This deep, well drained, gently sloping soil is on hillsides in the Coastal Plains. Individual areas range from 20 to 2,000 acres or more.

Typically, the surface layer is yellowish brown fine sandy loam about 5 inches thick. The subsurface layer is brown fine sandy loam to a depth of about 10 inches. The upper part of the subsoil to a depth of about 35 inches is yellowish red sandy clay loam, the middle part to a depth of about 54 inches is red sandy clay loam, and the lower part to a depth of 72 inches or more is red fine sandy loam that has pockets of yellowish brown sandy loam.

This soil is low in natural fertility and organic matter content. Reaction is strongly acid or very strongly acid throughout except for surface layers that have been limed. Permeability is moderate, and available water capacity is high.

Included with this soil in mapping are a few small areas of Bowie, Eylau, Ruston, and Sacul soils. Also included are a few areas of soils that have slopes of more than 8 percent.

This Smithdale soil is moderately suited to cultivated crops. Adapted crops are soybeans and truck crops. Runoff is medium, and the hazard of erosion is severe. Minimum tillage, contour farming, and the use of cover crops help to reduce runoff and control erosion. This soil is well suited to pasture and hayland, and it is mainly used for pasture and hay. Adapted pasture plants are bermudagrass, bahiagrass, and tall fescue.

This soil is well suited to woodland. There are no significant limitations for woodland use or management. Loblolly pine is adapted for planting.

Figure 10.—Cotton on Severn silt loam, 0 to 1 percent slopes.

This soil is well suited or moderately suited to most urban uses. There are no significant limitations for dwellings or local roads and streets. Slope is a moderate limitation for small commercial buildings, and moderate permeability is a moderate limitation for septic tank filter fields. These limitations can usually be overcome by proper engineering design.

This soil is in capability subclass IIIe and woodland suitability group 3o1.

75—Smithton fine sandy loam, 0 to 2 percent slopes. This deep, poorly drained soil is on level to nearly level upland flats and stream terraces in the Coastal Plains. Individual areas range from 10 to more than 100 acres.

Typically, the surface layer is dark grayish brown fine sandy loam about 9 inches thick. The subsurface layer is light brownish gray fine sandy loam to a depth of about 16 inches. The upper part of the subsoil is light brownish gray and gray, mottled loam to a depth of about 54 inches, and the lower part is light brownish gray and light gray, mottled loam to a depth of 72 inches or more.

This soil is low in natural fertility and organic matter content. Reaction is very strongly acid or strongly acid throughout. Permeability is moderately slow, and available water capacity is medium. A perched water table is within 12 inches of the surface from late in winter to early in spring. Water commonly ponds on the surface during wet periods.

Included with this soil in mapping are a few small areas of Amy, Harleston, and Guyton soils. Also included are a few areas of Smithton soils that are subject to flooding.

This Smithton soil is moderately suited to cultivated crops. Adapted crops are grain sorghum and small grains. Wetness is the main limitation, and field operations are often delayed for several days after a rain. This limitation can be partially overcome by installation of a drainage system. Runoff is slow. This soil is moderately suited to pasture and hay. Wetness is the main limitation, but it can be partially overcome by installation of a drainage system and by deferring grazing during wet periods. Adapted pasture plants are bermudagrass, tall fescue, and bahiagrass.

This soil is well suited to woodland, and it is mainly used for tree production. Loblolly pine, cherrybark oak, water oak, and sweetgum are adapted species. Wetness is a severe limitation to use of equipment in managing and harvesting the tree crop; however, this limitation generally can be overcome by using special equipment and by harvesting during the dry seasons.

This soil is poorly suited to most urban uses. Wetness and moderately slow permeability are severe limitations for septic tank absorption fields. These limitations are difficult to overcome. Wetness is a severe limitation for dwellings, small commercial buildings, and local roads and streets. These limitations can be partially overcome by installation of a drainage system and by proper engineering design.

This soil is in capability subclass IIIw and woodland suitability group 2w9.

76—Sumter silty clay loam, 5 to 12 percent slopes, eroded. This moderately deep, well drained, gently sloping to moderately sloping soil is on hilltops and hillsides in the Blackland Prairies. Erosion has removed most of the topsoil, and occasional rills occur. Individual areas range from about 5 to 100 acres.

Typically, the surface layer is grayish brown silty clay loam about 7 inches thick. The subsoil is pale olive, mottled silty clay loam to a depth of about 24 inches. The underlying material is light gray, mottled, soft rippable chalk.

This soil is moderate in natural fertility and organic matter content. Reaction is moderately alkaline and calcareous throughout. Permeability is slow, and available water capacity is low.

Included with this soil in mapping are a few small areas of Demopolis, Houston, and Oktibbeha soils. Also included are a few small gullied areas and a few areas of soils that have slopes of more than 12 percent.

This Sumter soil is not suited to cultivated crops. Runoff is rapid, and the hazard of additional erosion is very severe. Shallow rooting depth, slope, and erosion are limitations. This soil is poorly suited to pasture and hayland. Adapted pasture plants are common bermudagrass, King Ranch bluestem, tall fescue, and white clover.

This soil is moderately suited to woodland, and it is mainly used for tree production. Eastern redcedar is an important tree. Soil disturbance caused by the planting and harvesting of trees creates an erosion hazard. When this soil is wet, the clayey texture is a moderate limitation to use of equipment, especially on the steeper slopes. Low available water capacity causes moderate seedling mortality. These limitations are difficult to overcome.

This soil is poorly suited to urban uses. Slow permeability and depth to rock are severe limitations for septic tank absorption fields. These limitations are difficult or impractical to overcome. High shrink-swell is a severe limitation for dwellings and small commercial buildings. Slope is an additional severe limitation for small commercial buildings. Low strength and high shrink-swell are severe limitations for local roads and streets. These limitations can usually be overcome by proper engineering design.

This soil is in capability subclass VIe and woodland suitability group 4c2.

77—Trinity clay, occasionally flooded. This deep, somewhat poorly drained, level soil is on flood plains of streams draining the Blackland Prairies. Slopes are 0 to 1 percent. Individual areas range from about 15 to 300 acres.

Typically, the surface and subsurface layers are very dark gray clay about 33 inches thick. The underlying material is very dark gray, mottled clay to a depth of 72 inches or more.

This soil is high in natural fertility and moderate in organic matter content. Reaction is mildly alkaline or moderately alkaline. This soil is calcareous throughout. Permeability is very slow, and available water capacity is high. This soil shrinks and cracks when it is dry and expands and the cracks close when it is wet. The water table is seasonally high and is within 36 inches of the surface during winter and spring. Flooding is occasional and generally occurs between December and May.

Included with this soil in mapping are a few small areas of Catalpa, Houston, and Billyhaw soils.

This Trinity soil is poorly suited to cultivated crops. The main cultivated crops are soybeans, rice, and grain sorghum. Occasional flooding and wetness are the main limitations for cultivated crops. Farming operations are commonly delayed for several days after a rain, and surface drainage is needed. Because of the clayey surface layer, this soil can be tilled only within a narrow range of moisture content. Flood control structures and installation of a drainage system improve the suitability of this soil for cultivated crops.

This soil is moderately suited to pasture and hayland, and it is mainly used for pasture and hay. Adapted pasture plants are tall fescue, alfalfa, crimson clover, white clover, and bermudagrass. During wet periods, livestock traffic severely damages the pasture. The clayey texture of this soil and wetness due to the high water table restrict access to supplemental feeding places. Occasional flooding is a hazard to livestock. Flood control structures and improved drainage reduce the limitations of this soil for use as pasture and hayland.

This soil is well suited to woodland. Cottonwood and green ash are adapted species. Wetness and low strength severely restrict the use of equipment in managing and harvesting the tree crop, but these limitations can be overcome by harvesting during dry periods.

This soil is poorly suited to most urban uses. Very slow permeability, wetness, and occasional flooding are severe limitations for septic tank filter fields. Wetness, occasional flooding, and very high shrink-swell are severe limitations for dwellings and small commercial buildings. Low strength, wetness, and flooding are severe limitations for local roads and streets. These limitations are usually difficult or impractical to overcome.

This soil is in capability subclass IVw and woodland suitability group 1w6.

78—Udorthents. These nearly level to very steep soils are on uplands in the Coastal Plains. Individual areas range from about 10 to more than 500 acres. Slopes range from 1 to more than 40 percent.

Udorthents consist of soils that have been altered or obscured by mining operations (fig. 11). The soil material ranges from coarse sand to clay. The content of coarse fragments ranges from 0 to 45 percent.

Permeability is slow to rapid. Natural fertility and organic matter content are low. Available water capacity is low. Reaction ranges from slightly acid to extremely acid throughout.

Included with these soils in mapping are a few small areas of Eylau, Sacul, and Sawyer soils. Also included are abandoned mine pits. These pits are long, open excavations from which the soil and underlying material have been removed.

Udorthents are not suitable for cultivated crops. The hazard of erosion is very severe. The smoothed areas are moderately suited to pasture, but the unsmoothed areas are poorly suited to pasture. Adapted pasture plants are bermudagrass, bahiagrass, tall fescue, annual lespedeza, and sericea lespedeza. Proper stocking rates, controlled grazing, and weed and brush control are management concerns.

These soils are poorly suited to woodland. Seedling mortality, erosion, droughtiness, and slopes on the unsmoothed areas are severe limitations for woodland use and management.

Udorthents are poorly suited to most urban uses. Areas that have slopes of less than 15 percent have moderate limitations, and areas that have slopes of more than 15 percent have severe limitations for dwellings, small commercial buildings, local roads and streets, and septic tank absorption fields.

These soils are in capability subclass VIIe. They are not assigned to a woodland suitability group.

79—Woden fine sandy loam, 0 to 1 percent slopes. This deep, well drained, level soil is on stream terraces in the Coastal Plains. Individual areas range from 30 to 100 acres.

Typically, the surface layer is dark brown fine sandy loam about 13 inches thick. The subsoil to a depth of 78 inches or more is yellowish red fine sandy loam that has none to common dark reddish brown mottles.

This soil is low in natural fertility and organic matter content. Reaction ranges from neutral to strongly acid in the surface layer and is medium acid or strongly acid in the subsoil. Permeability is moderately rapid, and available water capacity is medium.

Included with this soil in mapping are a few, small intermingled areas of Bowie, Harleston, and Muskogee soils.

This Woden soil is well suited to cultivated crops, and it is mainly used for cropland. The principal crops are cotton and soybeans. This soil is well suited to pasture and hayland. Adapted pasture plants are bermudagrass and bahiagrass. There are no significant limitations for cultivated crops or pasture.

Figure 11.—Typical area of Udorthents.

This soil is well suited to woodland. Loblolly pine, shortleaf pine, and sweetgum are adapted species. There are no significant limitations for woodland use or management.

This soil is well suited to most urban uses. There are no significant limitations for septic tank absorption fields, dwellings, small commercial buildings, and local roads and streets.

This soil is in capability class I and woodland suitability group 2o7.

80—Woden fine sandy loam, 1 to 3 percent slopes. This deep, well drained, nearly level soil is on stream terraces of the Coastal Plains. Individual areas range from 30 to 100 acres or more.

Typically, the surface layer is dark brown fine sandy loam about 13 inches thick. The subsoil to a depth of 78 inches or more is yellowish red fine sandy loam that has none to common dark reddish brown mottles.

This soil is low in natural fertility and organic matter content. Reaction ranges from neutral to strongly acid in the surface layer and is medium acid or strongly acid in the subsoil. Permeability is moderately rapid, and available water capacity is medium.

Included with this soil in mapping are a few small intermingled areas of Bowie, Harleston, and Muskogee soils.

This Woden soil is well suited to cultivated crops, and it is mainly used for cropland. The principal crops are cotton and soybeans. Runoff is medium, and the hazard of erosion is moderate. Minimum tillage, contour farming,

and the use of cover crops, including grasses and legumes in the cropping system, are management practices that help to reduce runoff and control erosion. This soil is well suited to pasture and hayland. Adapted pasture plants are bermudagrass and bahiagrass.

This soil is well suited to woodland. Loblolly pine, shortleaf pine, and sweetgum are adapted species. There are no significant limitations for woodland use or management.

This soil is well suited to most urban uses. There are no significant limitations for septic tank absorption filter fields, dwellings, small commercial buildings, and local roads and streets.

This soil is in capability subclass IIe and woodland suitability group 2o7.

81—Woden fine sandy loam, 3 to 8 percent slopes. This deep, well drained, gently sloping soil is on stream terraces in the Coastal Plains. Individual areas range from 30 to 100 acres or more.

Typically, the surface layer is dark brown fine sandy loam about 13 inches thick. The subsoil to a depth of 78 inches or more is yellowish red fine sandy loam that has none to common dark reddish brown mottles.

This soil is low in natural fertility and organic matter content. Reaction ranges from neutral to strongly acid in the surface layer and is medium acid or strongly acid in the subsoil. Permeability is moderately rapid, and available water capacity is medium.

Included with this soil in mapping are a few intermingled areas of Bowie, Harleston, and Muskogee soils.

This Woden soil is moderately suited to cultivated crops. The main crops are cotton and soybeans. Grain sorghum and winter small grains are also grown. The hazard of erosion is a severe limitation for row crops. Minimum tillage, contour farming, and the use of cover crops, including grasses and legumes in the cropping system, are management practices that help to reduce runoff and control erosion. This soil is well suited to pasture, and it is mainly used for pasture. Adapted pasture plants are bermudagrass and bahiagrass.

This soil is well suited to woodland. Loblolly pine, shortleaf pine, and sweetgum are adapted species. There are no significant limitations for woodland use or management.

This soil is well suited to most urban uses. There are no significant limitations for dwellings, local roads and streets, and septic tank absorption fields. Slope is a moderate limitation for small commercial buildings.

This soil is in capability subclass IIIe and woodland suitability group 2o7.

82—Wrightsville silt loam, 0 to 1 percent slopes. This deep, poorly drained, level soil is on broad flats on terraces. Individual areas range from about 40 to more than 1,000 acres.

Typically, the surface layer is dark grayish brown and grayish brown silt loam about 7 inches thick. The subsurface layer to a depth of about 15 inches is light gray silt loam that has yellowish brown mottles. The upper part of the subsoil to a depth of 23 inches is light brownish gray silty clay that has tongues of light gray silt loam, and the lower part to a depth of about 57 inches is light brownish gray silty clay mottled in shades of red and brown. The underlying material is yellowish red silty clay to a depth of more than 72 inches.

This soil is moderate in natural fertility and low in organic matter content. Reaction is very strongly acid or strongly acid in the surface layer and ranges from very strongly acid to neutral in the subsoil and underlying material. Permeability is very slow, and available water capacity is high. The water table is seasonally high and is within 12 inches of the surface during winter and early in spring.

Included with this soil in mapping are a few small areas of Acadia, Gore, and Louin soils.

This Wrightsville soil is moderately suited to cultivated crops. Wetness is a severe limitation, and surface drainage is needed. Adapted crops are rice and soybeans. This soil is moderately suited to pasture. Adapted pasture plants are bermudagrass, bahiagrass, and tall fescue. Wetness is the main limitation. Livestock traffic may damage pastures during wet seasons.

This soil is well suited to woodland, and it is mainly used for tree production. Adapted species are loblolly pine, sweetgum, and water oak. Wetness is the main limitation to use of equipment in managing and harvesting the tree crop, but this limitation is usually overcome by logging during the drier seasons.

This soil is poorly suited to most urban uses. Wetness and very slow permeability are severe limitations for septic tank absorption fields. Wetness and high shrink-swell are severe limitations for dwellings and small commercial buildings. Low strength, wetness, and high shrink-swell are severe limitations for local roads and streets. These limitations are usually difficult or impractical to overcome.

This soil is in capability subclass IIIw and woodland suitability group 3w9.

83—Yorktown silty clay loam, frequently flooded. This deep, level, very poorly drained soil is in low ponded backswamps and abandoned oxbows in the Red River bottom lands. Slope is 0 to 1 percent. Individual areas range from about 50 to 250 acres.

Typically, the surface layer is grayish brown silty clay loam about 6 inches thick. The subsoil to a depth of about 50 inches is gray to dark gray clay that has red and brown mottles. The underlying material is reddish brown clay that has gray mottles.

This soil is high in natural fertility. Reaction ranges from medium acid to neutral in the surface layer and upper part of the subsoil and is mildly alkaline or

moderately alkaline in the lower part. Permeability is very slow, and available water capacity is high. This soil is flooded with 6 inches to as much as 60 inches of water for at least 10 months of most years.

Included with this soil in mapping are a few small areas of Perry soils. Also included are small areas of soils that have reddish brown clay at a depth of less than 40 inches and areas of soils that have silt loam and silty clay surface layers.

This Yorktown soil is not suited to cultivated crops and pasture because of wetness, flooding, and ponding. It is well suited to use as habitat for shallow water wildlife, and it is used mainly by wildlife (fig. 12).

This soil is moderately suited to woodland. Adapted species include baldcypress and water tupelo. The duration of flooding is a severe limitation to the use of equipment in managing and harvesting the tree crop.

This soil is not suitable for urban uses because of very slow permeability, flooding, ponding, and very high shrink-swell.

This soil is in capability subclass VIIw and woodland suitability group 4w9.

Figure 12.—Yorktown silty clay loam, frequently flooded, is in the background. This soil is well suited to wetland wildlife habitat.

Prime Farmland

Prime farmland soils, as defined by the U.S. Department of Agriculture, are the soils that are best suited to producing food, feed, forage, fiber, and oilseed crops to meet the nation's short and long range needs. These soils have the quality, growing season, and moisture supply needed to economically produce a sustained high yield of crops when they are treated and managed using acceptable farming methods. Prime farmland soils produce the highest yields with minimal inputs of energy and economic resources, and farming them results in the least damage to the environment.

Prime farmland soils may presently be in use as cropland, pasture, or woodland, or they may be in other uses. They either are used for producing food or fiber or are available for these uses. Urban or built-up land and water areas cannot be considered prime farmland.

Prime farmland soils usually get an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The acidity or alkalinity level of the soils is acceptable. The soils have few or no rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods and are not flooded during the growing season. The slope ranges mainly from 0 to 6 percent. More information on the criteria for prime farmland soils can be obtained at the local staff office of the Soil Conservation Service.

About 223,000 acres or nearly 67 percent of Lafayette County, about 232,000 acres or nearly 69 percent of Little River County, and about 197,000 acres or nearly 50 percent of Miller County meet the soil requirements for prime farmland. Cotton, grain sorghum, rice, soybeans, and wheat are the main crops.

A recent trend in land use in some parts of the survey area has been the conversion of some prime farmland soils to industrial and urban uses. Urban and built-up land is defined as any contiguous unit of land of 10 acres or more that is used for residences, industrial sites, commercial sites, construction sites, railroad yards, small parks, cemeteries, airports, golf courses, sanitary landfills, sewage treatment plants, water control structures, spillways, shooting ranges, and other manmade uses.

The loss of prime farmland to uses such as these puts pressure on marginal lands, which are generally more erodible, droughty, and difficult to cultivate and are usually less productive.

The following map units meet the requirements for prime farmland in Lafayette, Little River, and Miller Counties except where the use is for urban or built-up land, or the soil does not meet the criteria indicated in the footnote. The extent of each map unit is given in table 4. The location is shown on the detailed soil maps in the back of this publication. The soil qualities that affect use and management are described in the section "Detailed Soil Map Units." This list does not constitute a recommendation for a particular land use.

1	Acadia silt loam, 0 to 2 percent slopes [1]
2	Adaton silt loam, 0 to 1 percent slopes [1]
3	Amy silt loam, 0 to 1 percent slopes [1]
5	Billyhaw clay, 0 to 1 percent slopes
6	Billyhaw clay, gently undulating
7	Billyhaw clay, 0 to 1 percent slopes, occasionally flooded
9	Bowie fine sandy loam, 1 to 3 percent slopes
14	Caspiana silt loam, 0 to 1 percent slopes
15	Catalpa silty clay, 0 to 1 percent slopes
17	Eylau fine sandy loam, 1 to 3 percent slopes
21	Felker silt loam, 0 to 1 percent slopes
24	Forbing silt loam, 1 to 3 percent slopes
30	Harleston fine sandy loam, 1 to 3 percent slopes
31	Houston clay, 1 to 3 percent slopes
33	Kamie fine sandy loam, 1 to 3 percent slopes
34	Kamie fine sandy loam, 3 to 8 percent slopes
37	Kipling silt loam, 2 to 5 percent slopes
38	Latanier clay, gently undulating
40	Louin silty clay loam, 0 to 1 percent slopes [1]
43	Midland silty clay loam, 0 to 1 percent slopes
45	Muskogee silt loam, 1 to 3 percent slopes
47	Oklared fine sandy loam, gently undulating
48	Oklared fine sandy loam, occasionally flooded
51	Ouachita silt loam, occasionally flooded
52	Ouachita and Ochlockonee soils, occasionally flooded
53	Perry clay, 0 to 1 percent slopes
55	Rilla silt loam, 0 to 1 percent slopes
56	Rilla silt loam, gently undulating
57	Ruston fine sandy loam, 2 to 5 percent slopes
58	Sacul fine sandy loam, 1 to 3 percent slopes
67	Sardis silt loam, occasionally flooded
69	Sawyer silt loam, 1 to 3 percent slopes
71	Severn silt loam, 0 to 1 percent slopes
72	Severn silt loam, gently undulating
73	Severn silt loam, occasionally flooded

75	Smithton fine sandy loam, 0 to 2 percent slopes [1]
77	Trinity clay, occasionally flooded
79	Woden fine sandy loam, 0 to 1 percent slopes
80	Woden fine sandy loam, 1 to 3 percent slopes
81	Woden fine sandy loam 3 to 8 percent slopes
82	Wrightsville silt loam, 0 to 1 percent slopes [1]

[1] This soil is prime farmland where drainage has been provided to allow cultivated crops common to the area to be grown. Additional investigations are required before a prime farmland determination can be made.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavior characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreation facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under "Detailed Soil Map Units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

According to the 1978 Census of Agriculture, approximately 115,000 acres in Lafayette County, 160,000 acres in Little River County, and 200,000 acres in Miller County were used for crops and pasture. The potential of the soils in Lafayette, Little River, and Miller Counties for increased production of food is good. Food production could be increased considerably by extending the latest crop production technology to all cropland in the survey area. This soil survey can greatly help in the application of such technology.

Acreage in crops and pasture has gradually been decreasing as more and more land is used for urban development and other uses. The use of this soil survey to help make land use decisions that will influence the future of farming in the county is discussed in the section "General Soil Map Units."

Crops—Erosion control is needed on sloping soils that are used for clean-tilled crops. Such control includes contour cultivation, terraces, or grassed waterways, or combinations of these measures. In addition, good mulch from harvested crops should be left on the surface as long as possible before planting, and as little weed control tillage as is necessary should be used.

Annual cover crops or grasses and legumes should be grown regularly if the hazard of erosion is severe, or if the crops grown leave only small amounts of residue. Proper row arrangement and suitable surface drainage are needed for dependable growth in wet areas. Many areas that are subject to frequent flooding are unsuited, or only marginally suited, to most crops commonly grown in these counties.

A plowpan commonly develops in loamy soils that are improperly tilled or are tilled frequently with heavy equipment. Keeping tillage to a minimum, varying the depth of tillage, and tilling when soil moisture content is favorable help to prevent formation of a plowpan. Planting deep-rooted grasses and legumes is desirable because they help to break up the plowpan.

If left bare, many soils tend to puddle, pack, and crust during periods of heavy rainfall. The use of cover crops

and proper management of crop residue help to preserve or improve tilth.

Pasture—Perennial grasses or legumes or mixtures of grasses and legumes are grown for pasture and hay. Mixtures generally consist of either a summer or a winter perennial grass and a suitable legume.

Coastal bermudagrass, common bermudagrass, and Pensacola bahiagrass are the summer perennials most commonly grown. Coastal bermudagrass and Pensacola bahiagrass produce good quality forage. Tall fescue is the chief winter perennial grass now used in the survey area. However, it grows well only on soils that have favorable soil moisture content. All of these grasses respond well to fertilizer, particularly to nitrogen. White clover, crimson clover, annual lespedeza, and sericea lespedeza are the most commonly grown legumes.

Proper grazing management is essential for high quality forage, stand survival, and erosion control. Brush and weed control, fertilization, and renovation of the pasture are also important.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green-manure crops; and harvesting that insures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor does it consider possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland and for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit. Only class and subclass are used in this survey. These levels are defined in the following paragraphs.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have slight limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w, s,* or *c* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation.

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, IIe-4 or IIIe-6.

The capability classification of each map unit is given in the section "Detailed Soil Map Units."

Woodland Management and Productivity

Kelly M. Koonce, forester, Soil Conservation Service, helped prepare this section.

The first settlers in Lafayette, Little River, and Miller Counties found the land covered with virgin forest. Broadleaved hardwood trees, such as eastern cottonwood, sweetgum, sycamore, and water oak, willow oak, and other oaks, together with baldcypress, ash, water tupelo, and elm trees, grew on the river and stream bottoms, and broadleaved hardwood trees and a few loblolly and shortleaf pines grew in the uplands.

According to United States Department of Agriculture Forest Resource Bulletin SO-70, about 188,800 acres or 56 percent of Lafayette County, 198,400 acres or 59 percent of Little River County, and 168,000 acres or 41 percent of Miller County are in commercial forest. Sawlogs, pulpwood, poles, piling, crossties, fenceposts, handles, and fuelwood are the principal manufactured products.

Table 6 can be used by woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the woodland suitability group symbol for each soil. Soils assigned the same woodland suitability group symbol require the same general management and have about the same potential productivity.

The first part of the *woodland suitability group symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *w*, indicates excessive water in or on the soil; *d*, restricted root depth; *c*, clay in the upper part of the soil; *s*, sandy texture; and *f*, high content of coarse fragments in the soil profile. The letter *o* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: w, d, c, s, and f. The third part of the symbol, a number, indicates the kind of trees for which the soils in the group are best suited and also indicates the severity of the hazard or limitation. The numerals 1, 2, and 3 indicate slight, moderate, or severe limitations, respectively, and suitability for needleleaved trees. The numerals 4, 5, and 6 indicate slight, moderate, and severe limitations, respectively, and suitability for broadleaved trees. The numerals 7, 8, and 9 indicate slight, moderate, or severe limitations, respectively, and suitability for both needleleaved and broadleaved trees.

In table 6, *slight, moderate,* and *severe* also indicate the degree of the major soil limitations to be considered in management.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or in equipment; and *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree to which the soil affects the mortality of tree seedlings. Plant competition is not considered in the ratings. The ratings apply to seedlings from good stock that are properly planted during a period of sufficient rainfall. A rating of *slight* indicates that the expected mortality is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index*. This index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. Site index was calculated at age 30 years for eastern cottonwood, 35 years for American sycamore, and 50 years for all other species. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Trees to plant are those trees that are suited to the soils and to commercial wood production.

Recreation

The soils of the survey area are rated in table 7 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil

features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewerlines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreation use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 7, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 7 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 10 and interpretations for dwellings without basements and for local roads and streets in table 9.

Camp areas require site preparation such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking, horseback riding, and bicycling should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Wildlife Habitat

Robert G Price, biologist, Soil Conservation Service, helped to prepare this section.

Lafayette, Little River, and Miller Counties have a variety of habitat suitable for fish and wildlife. This habitat includes cropland, pastures, bottom land and upland forests, wetlands, streams, and lakes.

Plants of major importance to terrestial wildlife include woolly croton, greenbrier, lespedeza, milk pea, panicgrass, partridgepea, ragweed, sumac, and vetch. Overstory and understory woody plants are elderberry, dogwood, hackberry, hickory, pine, sweetgum, and various species of oaks. Domestic plants of importance to wildlife include many pasture plants, especially alfalfa, fescue, and johnsongrass.

Bottom land hardwood forests interspersed with cropland and pasture provide edge habitat and woodland habitat for white-tailed deer (fig. 13), squirrels, swamp rabbits, raccoons, coyotes, opossums, foxes, and many nongame birds. Lowland habitats along the Red River, Little River, Sulphur River, oxbows, and old river lakes support a variety of furbearers, including muskrats, beavers, mink, raccoons, gray foxes, striped skunks, and coyotes.

The Lafayette County Wildlife Management Area is cooperatively managed by The Arkansas Game and Fish Commission and the International Paper Company. Various species of ducks are attracted to this habitat area because of Lake Erling, a 7,000-acre tract of water which forms the eastern boundary of the management area. In addition, a small waterfowl rest area has been developed in the northeastern part of the Management Area. Bass, crappie, and catfish are generally abundant in Lake Erling.

Millwood Lake in Little River County supplies 29,200 acres of habitat for fish and wildlife. The wide variety of fish includes largemouth and spotted bass, crappie, white bass, striped bass, channel and flathead catfish, bluegill, sunfish, buffalo fish, carp, and drum. The most important wildlife species in the area is waterfowl. The mallard is especially numerous during the fall season. Other common wildlife are white-tailed deer, bobwhite quail, doves, squirrels, rabbits, raccoons, armadillos, opossums, foxes, mink, and beaver.

In Miller County, the Sulphur River Wildlife Management Area provides some of the best habitat for ducks in southwestern Arkansas, especially when the area is flooded. Most of the Sulphur River Management Area is in the lowlands of Mercer Bayou and includes a number of streams that wind through the bottom lands. These wet areas also provide habitat for the American alligator (fig. 14).

Figure 13.—Hardwood forests provide excellent habitat for white-tailed deer.

Lafayette County has 500 acres of ponds, 9,200 acres of lakes, and 100 miles of streams. Little River County has about 1,500 acres of ponds, 112 miles of streams, and about 45,000 acres of lakes. Miller County has 500 acres of ponds, 2,224 acres of lakes, and 103 miles of streams. All of these water areas provide habitat for fish and for other forms of wildlife.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 8, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or

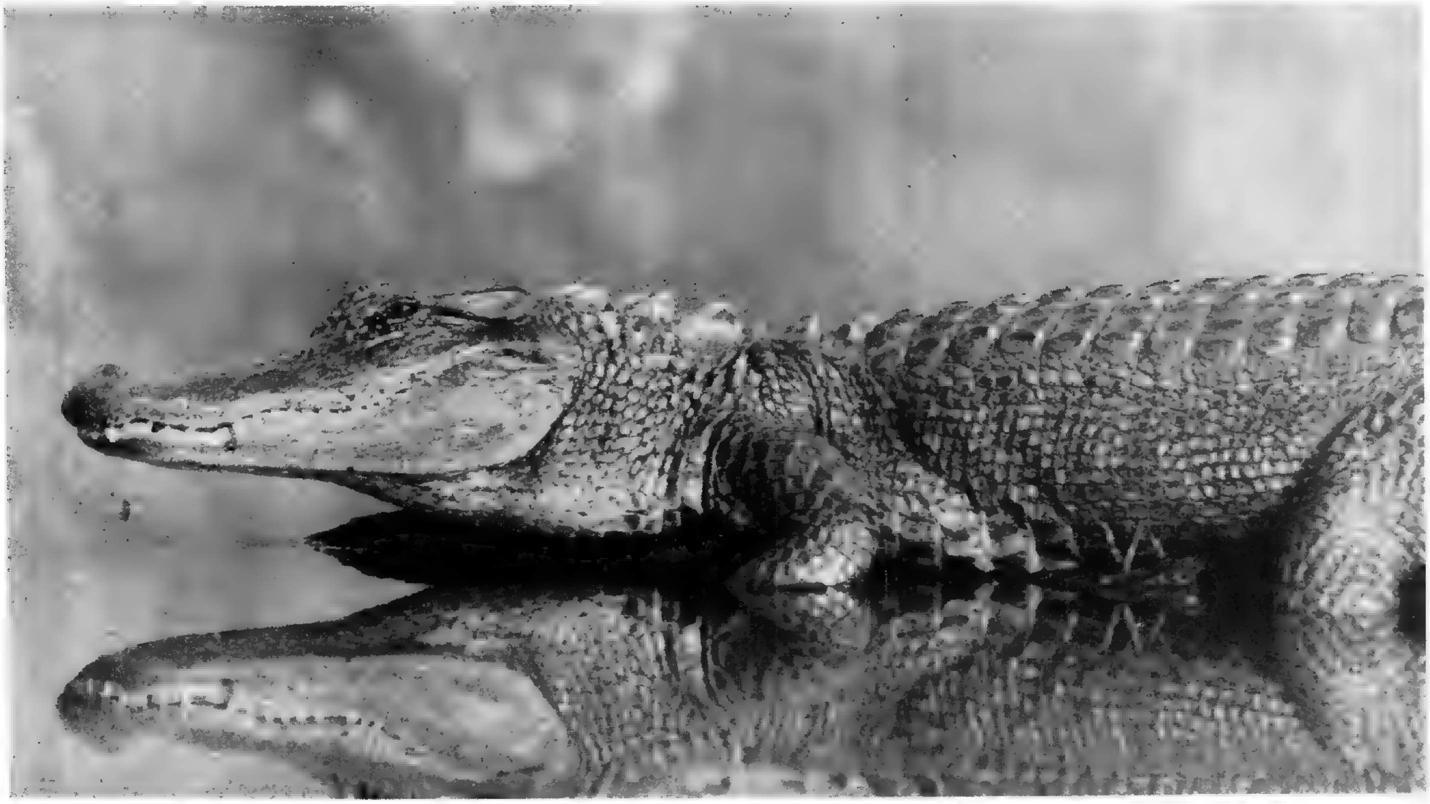


Figure 14.—The American alligator is common in the wetlands of the survey area.

maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, ragweed, and asters.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, the available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian-olive, autumn-olive, and crabapple.

Coniferous plants furnish browse, seeds, and cones. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include bobwhite quail, meadowlarks, field sparrows, cottontails, and red foxes.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkeys, woodcocks, thrushes, woodpeckers, squirrels, gray foxes, raccoons, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, shore birds, muskrats, mink, and beaver.

Engineering

James L. Janski, assistant State conservation engineer, Soil Conservation Service, helped prepare this section.

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. The ratings are given in the following tables: Building site development, Sanitary facilities, Construction materials, and Water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations need to be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to (1) evaluate the potential of areas for residential, commercial, industrial, and recreation uses; (2) make preliminary estimates of construction conditions; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; (5) plan detailed onsite investigations of soils and geology; (6) locate potential sources of gravel, sand, earthfill, and topsoil; (7) plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and (8) predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Table 9 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local

roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and the depth to the water table.

Dwellings and small commercial buildings are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrink-swell potential, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 to 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost action potential, and depth to a high water table affect the traffic supporting capacity.

Sanitary Facilities

Table 10 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 10 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to effectively filter the effluent. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 10 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The

ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage due to rapid permeability of the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground water pollution. Ease of excavation and revegetation needs to be considered.

The ratings in table 10 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area type sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 11 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a probable or improbable source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet, and the depth to the water table is less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. In table 11, only

the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 12 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and potential frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, or sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to reduce erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts or sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classifications, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 13 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under "Soil Series and Their Morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. (*4*) These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If a soil contains particles coarser than sand, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (*1*).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

Table 14 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, and plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3 bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.05 to 0.69. The higher the value the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Organic matter is the plant and animal residue in the soil at various stages of decomposition.

In table 14, the estimated content of organic matter of the plow layer is expressed as a percentage, by weight,

of the soil material that is less than 2 millimeters in diameter.

The content of organic matter of a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Soil and Water Features

Table 15 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the intake of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary inundation of an area, is caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt and water in swamps and marshes are not considered flooding.

Table 15 gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, common, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *common* that it is likely under normal conditions; *occasional* that it occurs on an average of once or less in 2 years; and *frequent* that it occurs on an average of more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; November-May, for example, means that flooding can occur during the period November through May.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons that form in soils that are not subject to flooding.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 15 are the depth to the seasonal high water table; the kind of water table—that is, perched, artesian, or apparent; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in table 15.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. An *artesian* water table is under hydrostatic head, generally beneath an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Only saturated zones within a depth of about 6 feet are indicated. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is specified as either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of

corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severe corrosion environment. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (*5*). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. In table 16, the soils of the survey area are classified according to the system. The categories are defined in the following paragraphs.

ORDER. Ten soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Alfisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aqualf (*Aqu*, meaning wetness, plus *alf*, from Alfisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludalfs (*Hapl*, meaning minimal horizonation, plus *udalf*, the suborder of the Alfisols that have a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-silty, mixed, thermic Typic Hapludalfs.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

Soil Series and their Morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the Soil Survey Manual (*4*). Many of the technical terms used in the descriptions are defined in Soil Taxonomy (*5*). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed Soil Map Units."

Acadia Series

The Acadia series consists of deep, somewhat poorly drained, level to nearly level soils on low terraces in the Coastal Plains. Permeability is very slow. These soils formed in clayey alluvium. The native vegetation was mixed hardwoods and pine. Slopes range from 0 to 2 percent.

Acadia soils are geographically associated with Gore, Kamie, Louin, McKamie, Muskogee, and Wrightsville soils. Gore, McKamie, and Muskogee soils are at slightly higher elevations than Acadia soils. Gore soils are moderately well drained, McKamie soils are well drained,

and Muskogee soils are moderately well drained and have a fine-silty control section. Kamie soils are on hilltops and hillsides. They are well drained and have a fine-loamy control section. Louin soils are in positions on the landscape similar to those of Acadia soils. They have intersecting slickensides at a depth of less than 40 inches and do not have an argillic horizon. Wrightsville soils are at a slightly lower elevation. They are poorly drained and have tonguing of the A2 horizon into the B horizon.

Typical pedon of Acadia silt loam, 0 to 2 percent slopes, in a moist wooded area in the SE1/4NE1/4SE1/4 sec. 32, T. 16 S., R. 23 W.; in Lafayette County:

A1—0 to 4 inches; dark brown (10YR 4/3) silt loam; weak medium granular structure; friable; very strongly acid; abrupt smooth boundary.

A2—4 to 14 inches; light yellowish brown (10YR 6/4) silt loam; common medium distinct gray (10YR 6/1) and yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable; very strongly acid; clear smooth boundary.

B1—14 to 20 inches; brownish yellow (10YR 6/6) silty clay loam; common medium distinct gray (10YR 6/1) mottles; weak medium subangular blocky structure; firm; very strongly acid; gradual smooth boundary.

B2tg—20 to 28 inches; gray (10YR 6/1) silty clay; common medium prominent red (2.5YR 4/8) and common medium distinct brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; very firm; thin discontinuous clay films; very strongly acid; gradual smooth boundary.

B3g—28 to 50 inches; gray (10YR 6/1) silty clay; common medium distinct brownish yellow (10YR 6/6) and common medium prominent red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; very firm; very strongly acid; gradual smooth boundary.

Cg—50 to 72 inches; light brownish gray (10YR 6/2) clay; common large prominent red (2.5YR 4/8) and common medium distinct strong brown (7.5YR 5/6) and brownish yellow (10YR 6/6) mottles; massive; very firm; very strongly acid.

The solum thickness ranges from 38 to 60 inches. Reaction ranges from very strongly acid to medium acid throughout.

The combined thickness of the A horizons ranges from 8 to 20 inches. The A1 or Ap horizon has hue of 10YR, value of 4, and chroma of 1, 2, or 3, or value of 5 and chroma of 3. The A2 horizon has hue of 10YR, value of 6, and chroma of 2, 3, or 4.

The B1 horizon has hue of 10YR, value of 5 or 6, and chroma of 6, or value of 5 and chroma of 8. It is silt loam or silty clay loam. The B2tg and the B3g horizons have hue of 10YR, value of 6, and chroma of 1 or 2; or they have hue of 2.5Y, value of 6, and chroma of 2. They are silty clay or clay. Mottles in the B horizon are in shades of gray, brown, or red.

The color range in the Cg horizon is similar to that of the B3g horizon. The Cg horizon is silty clay loam, silty clay, or clay.

Adaton Series

The Adaton series consists of deep, poorly drained, level soils on low terraces in the Coastal Plains. Permeability is slow. These soils formed in silty alluvium. The native vegetation was mixed hardwoods and a few pine. Slopes are 0 to 1 percent.

Adaton soils are geographically associated with Felker, Guyton, and Wrightsville soils. Felker soils are at a slightly higher elevation than Adaton soils. They are somewhat poorly drained and have low base saturation. Guyton soils are on flood plains. They have tonguing of the A2 horizon into the B horizon. Wrightsville soils are in positions on the landscape similar to those of Adaton soils. They have tonguing of the A2 horizon into the B horizon and have a fine control section.

Typical pedon of Adaton silt loam, 0 to 1 percent slopes, in a moist wooded area in the SW1/4NW1/4SE1/4 sec. 17, T. 17 S., R. 23 W.; in Lafayette County:

A1—0 to 7 inches; grayish brown (10YR 5/2) silt loam; common fine distinct yellowish brown (10YR 5/4) mottles; moderate medium granular structure; friable; very strongly acid; clear smooth boundary.

B21tg—7 to 19 inches; light gray (10YR 7/1) silt loam; common medium distinct yellowish brown (10YR 5/8) and few fine prominent yellowish red mottles; weak medium subangular blocky structure; friable; very strongly acid; clear smooth boundary.

B22tg—19 to 31 inches; light gray (10YR 7/1) silt loam; common medium distinct yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable; very strongly acid; gradual smooth boundary.

B23tg—31 to 39 inches; light gray (10YR 7/1) silt loam; common medium distinct yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; friable; very strongly acid; gradual smooth boundary.

B24tg—39 to 50 inches; light brownish gray (2.5Y 6/2) silty clay loam; common medium distinct yellowish brown (10YR 5/4) and few medium distinct yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable; very strongly acid; clear smooth boundary.

B3g—50 to 72 inches; gray (10YR 5/1) silty clay loam; common medium distinct yellowish brown (10YR 5/8) and few fine prominent yellowish red mottles; weak medium subangular blocky structure; firm; very strongly acid; clear smooth boundary.

The solum thickness exceeds 60 inches. Reaction is strongly acid or very strongly acid throughout.

The A horizon ranges from 4 to 8 inches in thickness. It has hue of 10YR, value of 4 or 5, and chroma of 2 or 3.

The B2tg and B3g horizons have hue of 10YR, value of 5, 6, or 7, and chroma of 1; or they have hue of 10YR or 2.5Y, value of 6, and chroma of 2. Mottles are in shades of yellow and brown. The B2tg and B3g horizons are silt loam or silty clay loam and include silty clay in the lower part.

Where the Cg horizon is present, colors and textures are similar to those of the B3g horizon.

Amy Series

The Amy series consists of deep, poorly drained, level soils on upland flats and flood plains in the Coastal Plains. Permeability is slow. These soils formed in silty alluvium. The native vegetation was mixed pine and hardwoods. Slopes are 0 to 1 percent.

Amy soils are geographically associated with Bowie, Eylau, Sacul, and Smithdale soils. All of the associated soils are on uplands at higher elevations than Amy soils. Bowie, Eylau, and Sacul soils are moderately well drained, and Smithdale soils are well drained. In addition, Bowie, Eylau, and Smithdale soils have fine-loamy control sections, and Sacul soils have a clayey control section.

Typical pedon of Amy silt loam, frequently flooded, in a moist wooded area in the SW1/4SW1/4NW1/4 sec. 27, T. 19 S., R. 27 W.; in Miller County:

A1—0 to 5 inches; grayish brown (10YR 5/2) silt loam; weak medium granular structure; very friable; common fine roots; strongly acid; clear smooth boundary.

A21g—5 to 10 inches; gray (10YR 6/1) silt loam; common fine distinct yellowish brown and dark yellowish brown mottles; moderate medium granular structure; very friable; common roots; strongly acid; clear smooth boundary.

A22g—10 to 15 inches; light brownish gray (10YR 6/2) silt loam; common fine distinct yellowish brown mottles; moderate medium granular structure; very friable; common fine roots; strongly acid; abrupt wavy boundary.

B21tg—15 to 21 inches; gray (10YR 5/1) silty clay loam; many medium distinct yellowish brown (10YR 5/8) and strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; friable; few silt coats and tongues of light gray (10YR 7/1); thin patchy clay films; common roots; very strongly acid; gradual smooth boundary.

B22tg—21 to 34 inches; gray (10YR 5/1) silty clay loam; common fine distinct yellowish brown mottles; moderate medium subangular blocky structure; friable; clay films along root channels and on faces of peds; common silt coats and pockets of light brownish gray (10YR 6/2) silt loam; few fine roots; very strongly acid; gradual smooth boundary.

B23tg—34 to 53 inches; gray (10YR 5/1) silty clay loam; common coarse distinct strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; friable; common clay films on faces of peds; few fine roots; very strongly acid; gradual smooth boundary.

B3g—53 to 66 inches; gray (10YR 5/1) silt loam; common medium distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; firm; few light gray (10YR 7/1) silt coats; few patchy clay films on faces of peds; very strongly acid; gradual smooth boundary.

Cg—66 to 90 inches; light brownish gray (10YR 6/2) fine sandy loam; common coarse distinct yellowish brown (10YR 5/6) mottles; massive; friable; very strongly acid.

The solum thickness ranges from 40 to 72 inches or more. Reaction is strongly acid or very strongly acid throughout.

The combined thickness of the A horizon ranges from 8 to 24 inches. The A1 horizon has hue of 10YR, value of 4 or 5, and chroma of 2, or value of 4 and chroma of 1. The A2g horizon has hue of 10YR, value of 6 or 7, and chroma of 1 or 2. Mottles are in shades of brown.

The B2tg and B3g horizons have hue of 10YR, value of 5, 6, or 7, and chroma of 1, or value of 6 and chroma of 2. Mottles are in shades of yellow and brown. The B2tg and B3g horizons are silt loam or silty clay loam.

The color range in the Cg horizon is similar to that of the B3g horizon. The Cg horizon is silt loam, silty clay loam, or fine sandy loam.

Billyhaw Series

The Billyhaw series consists of deep, somewhat poorly drained, level and nearly level soils on broad flats that were slack-water areas of the Red River and its former channels. Permeability is very slow. These soils formed in clayey alluvium. The native vegetation was mixed hardwoods. Slopes range from 0 to 3 percent.

Billyhaw soils are geographically associated with Caspiana, Latanier, Perry, Rilla, and Yorktown soils. Caspiana and Rilla soils are on natural levees. They are well drained and have fine-silty control sections. Latanier and Perry soils are in positions on the landscape similar to those of Billyhaw soils. Latanier soils have contrasting textures at depths of 20 to 40 inches, and Perry soils are poorly drained. Yorktown soils are on low ponded backswamps. They are very poorly drained.

Typical pedon of Billyhaw clay, 0 to 1 percent slopes, in a moist pasture in the SW1/4NE1/4NE1/4 sec. 12, T. 16 S., R. 26 W.; in Miller County:

Ap—0 to 4 inches; dark brown (7.5YR 3/2) clay; moderate medium subangular blocky structure; very firm; many fine roots; neutral; clear smooth boundary.

A12—4 to 26 inches; dark reddish brown (5YR 3/2) clay; common fine faint reddish brown mottles; moderate medium subangular blocky structure; very firm; few fine roots; pressure faces on peds; mildly alkaline; gradual wavy boundary.

AC1—26 to 39 inches; dark reddish brown (5YR 3/3) clay; few medium faint very dark gray (5YR 3/1) mottles; moderate medium subangular blocky structure; very firm; few fine roots; common grooved slickensides tilted 45 degrees that intersect; moderately alkaline; gradual smooth boundary.

AC2—39 to 68 inches; dark reddish brown (5YR 3/4) clay; weak medium subangular blocky structure; very firm; few fine roots; many grooved slickensides tilted 45 degrees that intersect; common irregularly shaped calcium carbonate nodules 2 to 6 millimeters in diameter; moderately alkaline; calcareous; gradual smooth boundary.

AC3—68 to 72 inches; reddish brown (5YR 4/4) clay; few medium prominent brown (7.5YR 5/2) mottles; weak medium subangular blocky structure; very firm; common grooved slickensides tilted 45 degrees that intersect; common masses of carbonates 2 to 10 millimeters in diameter; common irregularly shaped calcium carbonate nodules 2 to 6 millimeters in diameter; moderately alkaline; calcareous.

The solum thickness ranges from 40 to more than 60 inches. During dry seasons, cracks as much as 2 inches wide extend from the surface to depths of more than 20 inches. Clay content ranges from 60 to 80 percent throughout the 10- to 40-inch control section. Reaction is slightly acid or mildly acid in the A1 horizon, neutral to moderately alkaline in the AC horizon, and mildly alkaline or moderately alkaline in the C horizon. Depth to calcareous layers is more than 20 inches.

The A1 horizon ranges from 10 to 30 inches in thickness. It has hue of 10YR, 7.5YR, or 5YR, value of 2 or 3, and chroma of 2 or 3.

The AC horizons have hue of 2.5YR, 5YR, or 7.5YR, value of 3 or 4, and chroma of 2, 3, 4, or 6. Mottles of yellowish red, reddish brown, and dark brown range from none to common. In some pedons few to common grayish mottles are within 30 inches of the surface. Concretions of calcium carbonate range from 0 to 10 percent.

Bowie Series

The Bowie series consists of deep, moderately well drained, nearly level to gently sloping soils on hilltops and convex hillsides in the Coastal Plains. Permeability is moderately slow. These soils formed in loamy marine sediment. The native vegetation was mixed pine and hardwoods. Slopes range from 1 to 8 percent.

Bowie soils are geographically associated with Amy, Briley, Eylau, Ruston, Sacul, Saffell, and Smithdale soils. All of the associated soils are less than 5 percent plinthite. Amy soils are at a lower elevation than Bowie soils. They are poorly drained. Briley, Ruston, Saffell, and Smithdale soils are well drained. Saffell soils have a loamy-skeletal control section, and Sacul soils have a clayey control section. Eylau soils are more than 40 percent brittle in the horizontal cross section of the lower argillic horizons.

Typical pedon of Bowie fine sandy loam, 3 to 8 percent slopes, in a moist pasture in the SE1/4SW1/4SE1/4 sec. 21, T. 16 S., R. 28 W.; in Miller County:

Ap—0 to 5 inches; brown (10YR 4/3) fine sandy loam; moderate medium granular structure; very friable; many fine and medium roots; strongly acid; clear smooth boundary.

A2—5 to 14 inches; yellowish brown (10YR 5/4) fine sandy loam; few fine distinct strong brown (7.5YR 5/6) mottles; moderate medium granular structure; very friable; common fine and medium roots; strongly acid; clear smooth boundary.

B21t—14 to 22 inches; strong brown (7.5YR 5/6) sandy clay loam; common fine distinct yellowish red (5YR 4/8) mottles; moderate medium subangular blocky structure; firm; thin patchy clay films; common fine roots; very strongly acid; gradual smooth boundary.

B22t—22 to 40 inches; strong brown (7.5YR 5/6) sandy clay loam; common fine distinct light yellowish brown (10YR 6/4) and yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; firm; thin patchy clay films; 2 percent ironstone by volume 6 to 13 millimeters in diameter; common fine roots; very strongly acid; clear smooth boundary.

B23t—40 to 49 inches; strong brown (7.5YR 5/6) sandy clay loam; few medium prominent red (2.5YR 4/6) and common medium distinct gray (10YR 6/1) mottles; weak medium prismatic structure parting to moderate medium subangular blocky; firm; slightly brittle in 10 to 20 percent of strong brown matrix; thin patchy clay films; 2 percent ironstone by volume 6 to 13 millimeters in diameter; 10 to 15 percent nodular plinthite; very strongly acid; gradual wavy boundary .

B24t—49 to 72 inches; yellowish brown (10YR 5/6) sandy clay loam; common large prominent red (2.5YR 4/6) and light brownish gray (10YR 6/2) mottles; common vertical streaks of light brownish gray (10YR 6/2) 1 centimeter wide extending through horizon lined with vertical orientation of plinthite; weak coarse prismatic structure parting to moderate medium subangular blocky; 20 percent by

volume of brittle plinthite; firm; thin patchy clay films; very strongly acid.

The solum thickness ranges from 60 to more than 72 inches. Depth to horizons that are more than 5 percent plinthite is 25 to 60 inches. Reaction ranges from slightly acid to strongly acid in the A horizon and is strongly acid or very strongly acid in the B horizon.

The A horizon ranges from 9 to 15 inches in thickness. The A1 or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. The A2 horizon, where present, has hue of 10YR, value of 5 or 6, and chroma of 3 or 4.

The B2t horizon has hue of 10YR, value of 5 or 6, and chroma of 6 or 8; or it has hue of 7.5YR, value of 5, and chroma of 6 or 8. The lower part of the B horizon has mottles in shades of red, brown, and gray. Content of plinthite ranges from about 5 to 20 percent in the B23t and B24t horizons. The B23t and B24t horizons are fine sandy loam, clay loam, or sandy clay loam. The subsoils of some soils are brittle in 5 to 20 percent of the mass.

Briley Series

The Briley series consists of deep, well drained, nearly level to moderately sloping soils on hilltops and hillsides in the Coastal Plains. Permeability is moderate. These soils formed in sandy and loamy sediment. The native vegetation was mixed hardwoods and pine. Slopes range from 1 to 12 percent.

Briley soils are geographically associated with Bowie, Ruston, Sacul, and Smithdale soils. All of the associated soils have loamy surface layers. Bowie soils are on hillsides adjacent to Briley soils. They are more than 5 percent plinthite in the lower part of the solum and are moderately well drained. Ruston soils are on hilltops and hillsides at a slightly higher elevation. They are bisequal. Sacul soils are on adjacent hilltops and hillsides. They have a clayey control section and are moderately well drained. Smithdale soils are on adjacent hilltops and hillsides.

Typical pedon of Briley loamy fine sand, 3 to 8 percent slopes, in a woodland area in the NW1/4SE1/4NW1/4 sec. 15, T. 20 S., R. 28 W.; in Miller County:

A11—0 to 6 inches; dark brown (10YR 4/3) loamy fine sand; weak fine granular structure; very friable; common fine roots; strongly acid; clear wavy boundary.

A2—6 to 15 inches; yellowish brown (10YR 5/4) loamy fine sand; weak fine granular structure; very friable; common fine roots; strongly acid; clear wavy boundary.

A3—15 to 23 inches; strong brown (7.5YR 5/6) loamy fine sand; weak fine granular structure; very friable; common fine roots; strongly acid; clear wavy boundary.

B21t—23 to 40 inches; yellowish red (5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; common thin patchy clay films on faces of peds; few fine roots and pores; strongly acid; gradual wavy boundary.

B22t—40 to 72 inches; yellowish red (5YR 5/8) sandy clay loam; few medium faint red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; friable; common thin patchy clay films on faces of peds; few fine roots and pores; strongly acid.

The solum thickness ranges from 65 to more than 80 inches. Reaction ranges from very strongly acid to medium acid throughout.

The A horizon ranges from 20 to 40 inches in thickness. The A1 horizon has hue of 10YR, value of 4 or 5, and chroma of 3. The A2 horizon has hue of 10YR, value of 5 or 6, and chroma of 4. The A3 horizon has hue of 7.5YR, value of 5 or 6, and chroma of 6.

The B2t horizon has hue of 5YR, value of 4 or 5, and chroma of 6 or 8. Mottles are in shades of brown or red. The B2t horizon is fine sandy loam, sandy clay loam, or loam.

Caspiana Series

The Caspiana series consists of deep, well drained, level soils on natural levees of former channels of the Red River. Permeability is moderate. These soils formed in loamy alluvium. The native vegetation was mixed hardwoods. Slope is dominantly less than 1 percent.

Caspiana soils are geographically associated with Billyhaw, Perry, and Rilla soils. Billyhaw and Perry soils are on broad flats. They have very-fine control sections. In addition, Billyhaw soils are somewhat poorly drained, and Perry soils are poorly drained. Rilla soils are on older natural levees bordering former channels of the Red River. They do not have a mollic epipedon.

Typical pedon of Caspiana silt loam, 0 to 1 percent slopes, in a moist cultivated field in the NE1/4SE1/4NE1/4 sec. 19, T. 19 S., R. 25 W.; in Lafayette County:

Ap—0 to 6 inches; dark brown (7.5YR 3/2) silt loam; moderate medium granular structure; friable; neutral; clear smooth boundary.

A12—6 to 18 inches; very dark grayish brown (10YR 3/2) silt loam; few fine prominent reddish brown mottles; weak medium subangular blocky structure; friable; neutral; gradual smooth boundary.

B1—18 to 26 inches; dark brown (7.5YR 4/4) silt loam; weak medium subangular blocky structure; friable; thin patchy clay films; neutral; gradual wavy boundary.

B2t—26 to 45 inches; dark brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; thin patchy clay films on faces of peds; few black iron and manganese concretions;

dark coatings on ped faces; neutral; gradual wavy boundary.

B3—45 to 60 inches; dark brown (7.5YR 4/4) silt loam; dark brown (7.5YR 4/2) stains on faces of peds; weak medium subangular blocky structure; thin patchy clay films; friable; neutral; clear smooth boundary.

C—60 to 72 inches; stratified lenses of yellowish red (5YR 5/6) silt loam and yellowish red (5YR 4/6) silty clay loam; massive; friable; common medium calcium carbonate concretions; calcareous; mildly alkaline.

The solum thickness ranges from 30 to 60 inches. Reaction ranges from medium acid to neutral in the A horizon, from medium acid to mildly alkaline in the B1 and B2 horizons, and from slightly acid to moderately alkaline in the B3 and C horizons.

The A horizon ranges from 10 to 20 inches in thickness. It has hue of 10YR or 7.5YR, value of 3, and chroma of 1, 2, or 3.

The B horizon has hue of 7.5YR or 5YR, value of 4 or 5, and chroma of 4 or 6. The B2t horizon is silt loam or silty clay loam, and the B3 horizon is silt loam, silty clay loam, or very fine sandy loam.

The C horizon has hue of 5YR, value of 4 or 5, and chroma of 4 or 6; or it has hue of 7.5YR, value of 5, and chroma of 6. It is silt loam, silty clay loam, or very fine sandy loam.

Catalpa Series

The Catalpa series consists of deep, somewhat poorly drained, level soils on level flood plains or low terraces. Permeability is slow. These soils formed in clayey alluvium. The native vegetation is prairie grasses, Bois d'Arc, and eastern redcedar. Slopes are 0 to 1 percent.

Catalpa soils are geographically associated with Houston, Sumter, and Trinity soils. Houston soils are at a slightly higher elevation than Catalpa soils. They are more than 60 percent clay in the control section and have intersecting slickensides. Sumter soils are at a higher elevation. They are chalk within 20 to 40 inches of the surface and are well drained. Trinity soils are at a lower elevation. They are more than 60 percent clay in the control section and have intersecting slickensides.

Typical pedon of Catalpa silty clay, 0 to 1 percent slopes, in a moist pasture in the SE1/4SE1/4SE1/4 sec. 30, T. 12 S., R. 32 W.; in Little River County:

Ap—0 to 6 inches; very dark gray (10YR 3/1) silty clay; moderate medium granular structure; very firm; sticky and plastic; few fine roots; calcareous; mildly alkaline; clear smooth boundary.

A1—6 to 14 inches; very dark gray (10YR 3/1) silty clay; moderate medium subangular blocky structure; very firm; sticky and plastic; few fine roots; calcareous; mildly alkaline; clear wavy boundary.

B21—14 to 26 inches; dark grayish brown (2.5Y 4/2) silty clay; moderate medium subangular blocky structure; very firm; sticky and plastic; pressure faces on peds; few fine calcium carbonate concretions; calcareous; mildly alkaline; gradual smooth boundary.

B22—26 to 39 inches; dark grayish brown (2.5Y 4/2) silty clay; common fine distinct olive brown (2.5Y 4/4) mottles; moderate medium subangular blocky structure; very firm; sticky and plastic; pressure faces on peds; common fine and medium calcium carbonate concretions; calcareous; mildly alkaline; gradual smooth boundary.

B23—39 to 57 inches; dark grayish brown (2.5Y 4/2) silty clay; common medium distinct olive brown (2.5Y 4/4) mottles; moderate medium subangular blocky structure; very firm; sticky and plastic; pressure faces on peds; many calcium carbonate concretions; calcareous; mildly alkaline; gradual smooth boundary.

B3—57 to 72 inches; mottled dark grayish brown (2.5Y 4/2) and olive brown (2.5Y 4/4) silty clay; weak medium subangular blocky structure; very firm; sticky and plastic; pressure faces on peds; many calcium carbonate concretions; calcareous; mildly alkaline.

The solum thickness exceeds 60 inches. Reaction is mildly alkaline or moderately alkaline. These soils are calcareous throughout.

The A horizon ranges from 10 to 24 inches in thickness. It has hue of 10YR, value of 3, and chroma of 1 or 2.

The upper part of the B horizon has hue of 10YR or 2.5Y, value of 4, and chroma of 2. Mottles are olive brown. The lower part of the B horizon is mottled in shades of brown and gray. The B horizon is silty clay or silty clay loam. Content of lime concretions ranges from few to many.

Demopolis Series

The Demopolis series consists of shallow, well drained, gently sloping to moderately steep soils that formed in residuum derived from calareous chalk. Permeability is moderately slow. These soils are on hilltops and hillsides in the Blackland Prairies. The native vegetation was prairie grasses intermingled in places with eastern redcedar and Bois d'Arc. Slopes range from 3 to 20 percent.

Demopolis soils are geographically associated with Houston, Oktibbeha, and Sumter soils. All of the associated soils are in positions on the landscape similar to those of Demopolis soils. Houston soils have a very-fine control section and are deep. Oktibbeha soils have a very-fine control section and are deep to moderately deep. Sumter soils have a fine-silty control section and are moderately deep.

Typical pedon of Demopolis silty clay loam, 3 to 20 percent slopes, eroded, in a moist wooded area in the NW1/4SE1/4SW1/4 sec. 25, T. 11 S., R. 29W.; in Little River County:

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate medium subangular blocky structure; firm; sticky and plastic; common fine roots; about 10 percent by volume of soft platy fragments of chalk; moderately alkaline; calcareous; clear smooth boundary.

AC—6 to 14 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium subangular blocky structure; firm; sticky and plastic; few fine roots; 45 percent by volume of chalk; moderately alkaline; calcareous; clear smooth boundary.

Cr—14 to 18 inches; light gray (10YR 7/1) soft chalk; horizontal platy rock structure; hard to cut with spade but can be marked with fingernail when moist; moderately alkaline; calcareous.

The thickness of the soil over continuous soft chalk ranges from 10 to 16 inches. Reaction is moderately alkaline. These soils are calcareous throughout.

The A horizon ranges from 2 to 8 inches in thickness. It has hue of 10YR, value of 4 or 5, and chroma of 2; or it has hue of 2.5Y, value of 4, and chroma of 2.

The AC or C horizon has hue of 10YR, 2.5Y, or 5Y, value of 5, and chroma of 1 or 2. Few to common mottles are in shades of brownish yellow and light olive brown. The AC or C horizon is silty clay loam, and the content of chalk fragments ranges from 35 to 75 percent.

The Cr horizon has hue of 10YR, value of 7, and chroma of 1; or it has hue of 2.5Y, value of 5, and chroma of 1, or value of 7 and chroma of 1; or it has hue of 5Y, value of 5, and chroma of 1 or value of 7 and chroma of 1 or 2. The Cr horizon is chalk that can be cut with a spade.

Eylau Series

The Eylau series consists of deep, moderately well drained, nearly level to gently sloping soils on uplands in the Coastal Plains. Permeability is moderately slow. These soils formed in thick beds of loamy sediment. The native vegetation was mixed hardwoods and pine. Slopes range from 1 to 5 percent.

Eylau soils are geographically associated with Amy, Bowie, Ruston, Sacul, Saffell, Sawyer, and Smithdale soils. All of the associated soils are less than 40 percent brittle in the lower horizons. Amy soils are at a lower elevation than Eylau soils. They are poorly drained and have a fine-silty control section. Bowie soils have more than 5 percent plinthite. Ruston soils are well drained and are bisequal. Sacul soils have a clayey control section. Saffell soils are well drained and have a loamy-skeletal control section. Sawyer soils have a fine-silty control section and are clayey in the lower part of the subsoil. Smithdale soils are well drained.

Typical pedon of Eylau fine sandy loam, 3 to 5 percent slopes, in a moist pasture in the SE1/4NW1/4SW1/4 sec. 16, T. 16 S., R. 28 W.; in Miller County:

Ap—0 to 6 inches; yellowish brown (10YR 5/4) fine sandy loam; few fine distinct mottles of strong brown; moderate medium granular structure; very friable; many fine roots; medium acid; abrupt smooth boundary.

B21t—6 to 21 inches; strong brown (7.5YR 5/6) sandy loam; moderate medium subangular blocky structure; friable; thin patchy clay films on faces of peds; common fine roots; common very fine pores; strongly acid; gradual smooth boundary.

B22T—21 to 26 inches; yellowish brown (10YR 5/6) sandy clay loam; few medium prominent mottles of yellowish red (5YR 4/8); moderate medium subangular blocky structure; friable; thin patchy clay films on faces of peds; few fine roots; few fine pores; very strongly acid; gradual smooth boundary.

B23t—26 to 39 inches; yellowish brown (10YR 5/6) sandy clay loam; common medium prominent mottles of yellowish red (5YR 4/8) and common medium distinct mottles of gray (10YR 6/1); moderate to strong medium subangular blocky structure; firm; about 40 percent by volume compact and brittle; common patchy clay films on faces of peds; common fine pores; very strongly acid; gradual smooth boundary.

B24t&A'2—39 to 49 inches; mottled yellowish brown (10YR 5/6) and yellowish red (5YR 4/8) sandy clay loam; moderate coarse prismatic parting to moderate medium subangular blocky structure; firm; compact and brittle; common fine pores; few patchy clay films on faces of peds; seams of gray (10YR 6/1) very fine sandy loam between prisms; very strongly acid; gradual wavy boundary.

B25t&A'2—49 to 60 inches; mottled yellowish brown (10YR 5/6) and yellowish red (5YR 4/8) sandy clay loam; moderate coarse prismatic parting to moderate medium and coarse subangular blocky structure; firm; compact and brittle; tongues of gray (10YR 6/1) very fine sandy loam between prisms; continuous clay films on faces of peds; very strongly acid; gradual smooth boundary.

B26t&A'2—60 to 72 inches; mottled yellowish brown (10YR 5/6) and yellowish red (5YR 4/8) loam; common coarse prismatic parting to moderate medium and coarse subangular blocky structure; firm; compact and brittle; tongues of gray (10YR 6/1) very fine sandy loam between prisms; continuous clay films on faces of peds; very strongly acid.

The solum thickness exceeds 72 inches. Reaction ranges from strongly acid to slightly acid in the A horizon and is strongly acid or very strongly acid in the Bt horizon. Depth to the B2t and A'2 horizons ranges from 25 to 55 inches.

The A1 or Ap horizon has hue of 10YR, value of 4, 5, or 6, and chroma of 3 or 4, or value of 4 and chroma of 2. The A2 horizon, where present, has hue of 10YR, value of 5 or 6, and chroma of 3, 4, or 6.

The B2t horizons have hue of 10YR, or 7.5YR, value of 5 or 6, and chroma of 6 or 8. Light brownish gray or gray mottles are within 30 inches of the surface. Yellowish red and red mottles range from none to common. As much as 40 to 60 percent of some or all of the subhorizons are brittle. The Bt horizon is clay loam, sandy clay loam, or silty clay loam.

The B2t&A'2 horizons are mottled in shades of brown, gray, red, and yellow. The A'2 part of these horizons occurs as tongues and interfingers of light brownish gray or light gray. The B2t part is sandy clay loam, clay loam, or loam, and the A'2 part is fine sandy loam, very fine sandy loam, or silt loam.

Felker Series

The Felker series consists of deep, somewhat poorly drained, level soils on low terraces in the Coastal Plains. Permeability is moderately slow. These soils formed in silty, alluvial, and marine sediment. The native vegetation was mixed hardwoods and pine. Slopes are 0 to 1 percent.

Felker soils are geographically associated with Adaton, Harleston, Guyton, Muskogee, and Wrightsville soils. Adaton and Guyton soils are at slightly lower elevations than Felker soils. Both soils are poorly drained, and, in addition, Adaton soils have high base saturation. Harleston and Muskogee soils are at higher elevations. Both soils are moderately well drained. Harleston soils have a coarse-loamy control section, and Muskogee soils have Bt horizons that are clayey in the lower part. Wrightsville soils are in positions on the landscape similar to those of Felker soils. They are poorly drained and have tongues of the A2 horizon extending into the B horizon.

Typical pedon of Felker silt loam, 0 to 1 percent slopes, in a moist wooded area in the SE1/4SW1/4NW1/4 sec. 5, T. 12 S., R. 31 W.; in Little River County:

A1—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam; weak medium granular structure; very friable; very strongly acid; clear smooth boundary.

A2—5 to 9 inches; light yellowish brown (10YR 6/4) silt loam; few fine distinct yellowish brown (10YR 5/6) mottles; moderate medium granular structure; very friable; very strongly acid; clear smooth boundary.

B21t—9 to 18 inches; light yellowish brown (10YR 6/4) silt loam; common medium distinct strong brown (7.5YR 5/6) and few fine distinct light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; patchy distinct clay films on faces of peds; very strongly acid; gradual smooth boundary.

B22t—18 to 32 inches; light yellowish brown (10YR 6/4) silt loam; common medium distinct light brownish gray (10YR 6/2) and few fine prominent yellowish red (5YR 5/6) mottles; weak medium subangular blocky structure; friable; patchy distinct clay films on faces of peds; very strongly acid; gradual smooth boundary.

B23t—32 to 40 inches; light yellowish brown (10YR 6/4) silt loam; common medium distinct light brownish gray (10YR 6/2) and common coarse distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; patchy distinct clay films on faces of peds; very strongly acid; gradual smooth boundary.

B24t—40 to 49 inches; yellowish brown (10YR 5/6) silty clay loam; common medium distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; friable; patchy distinct clay films on faces of peds; very strongly acid; gradual smooth boundary.

B25t—49 to 62 inches; mottled light brownish gray (10YR 6/2), yellowish brown (10YR 5/6), and yellowish red (5YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; streaks and pockets of light gray silt; very strongly acid; gradual smooth boundary.

B26t—62 to 72 inches; yellowish brown (10YR 5/6) silt loam; common medium distinct light brownish gray (10YR 6/2) and few fine prominent yellowish red (5YR 5/6) mottles; weak medium subangular blocky structure; streaks and pockets of light gray; friable; very strongly acid.

The solum thickness is more than 60 inches. Reaction is very strongly acid or strongly acid throughout.

Combined thickness of the A horizon ranges from about 6 to 15 inches. The A1 horizon has hue of 10YR, value of 3 or 4, and chroma of 2, or value of 4 and chroma of 3. The A2 horizon has hue of 10YR, value of 5 or 6, and chroma of 3 or 4. Mottles are in shades of gray and brown.

The B21t and B22t horizons have hue of 10YR, value of 5 or 6, and chroma of 3, 4, 6, or 8. The B23t, B24t, B25t, and B26t horizons have hue of 10YR, value of 5, and chroma of 4 or 6, or value of 6 and chroma of 1, 2, 3, or 4. Mottles are in shades of gray, brown, or red. These horizons are silt loam or silty clay loam.

Foley Series

The Foley series consists of deep, poorly drained, nearly level soils on terraces and upland flats.

Permeability is very slow. These soils formed in silty material that was high in sodium concentration. The native vegetation was mixed hardwoods and pine. Slopes are 0 to 2 percent.

Foley soils are geographically associated with Midland and Kamie soils. Midland soils are in positions on the landscape similar to those of Foley soils but at a lower elevation. They have a fine control section. They do not have a natric horizon. Kamie soils are at a higher elevation. They are well drained and have a fine-loamy control section.

Typical pedon of Foley silt loam, 0 to 2 percent slopes, in the SW1/4SE1/4NW1/4 sec. 13, T. 13 S., R. 31 W.; in Little River County:

A1—0 to 3 inches; dark grayish brown (10YR 4/2) silt loam; common fine distinct yellowish brown mottles; weak medium granular structure; friable; many fine and medium roots; very strongly acid; clear smooth boundary.

A2g—3 to 8 inches; light brownish gray (2.5Y 6/2) silt loam; common fine distinct yellowish brown mottles; weak medium subangular blocky structure; friable; many fine and medium roots; very strongly acid; clear wavy boundary.

B&A—8 to 17 inches; grayish brown (2.5Y 5/2) silt loam; moderate medium subangular blocky structure; friable; common fine and medium roots; tongues of light gray (2.5Y 7/2) silt loam make up about 20 percent of horizon; strongly acid; gradual wavy boundary.

B21tg—17 to 25 inches; grayish brown (2.5Y 5/2) silty clay loam; tongues of light gray (2.5Y 7/2) silt loam 1/2 inch to 1 1/2 inches wide; weak coarse prismatic structure parting to moderate medium subangular blocky; moderately firm; common fine and few medium roots; many patchy clay films; neutral; gradual smooth boundary.

B22tg—25 to 36 inches; light brownish gray (2.5Y 6/2) silty clay loam; common medium distinct yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; moderately firm; few medium and fine roots in silt seams; tongues of light brownish gray (2.5Y 6/2) silt loam 1/4 inch to 3/4 inch wide; many patchy clay films; moderately alkaline; gradual smooth boundary.

B23tg—36 to 45 inches; light brownish gray (2.5Y 6/2) silty clay loam; common medium distinct yellowish brown (10YR 5/8) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; moderately firm; few light brownish gray (2.5Y 6/2) silt seams 1/4 inch wide; few medium and fine roots in silt seams; common medium calcium carbonate concretions; many patchy clay films; moderately alkaline; gradual smooth boundary.

B24tg—45 to 58 inches; light brownish gray (2.5Y 6/2) silty clay loam; common medium distinct yellowish brown (10YR 5/8) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; moderately firm; few fine roots in silt seams; few medium calcium carbonate concretions; many patchy clay films; moderately alkaline; gradual smooth boundary.

B25tg—58 to 66 inches; light olive gray (5Y 6/2) silty clay loam; common coarse prominent yellowish red (5YR 5/8) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; very firm; few fine roots in silt seams; few medium calcium carbonate concretions; many patchy clay films; strongly alkaline; gradual smooth boundary.

B3g—66 to 80 inches; light olive gray (5Y 6/2) silty clay loam; common coarse prominent yellowish red (5YR 5/8) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky structure; very firm; few fine roots in silt seams; few medium calcium carbonate concretions; many patchy clay films; strongly alkaline.

The solum thickness ranges from 60 to more than 72 inches. Reaction ranges from very strongly acid to medium acid in the A horizon, from very strongly acid to medium acid in the B&A horizon, from strongly acid to neutral in the B21 horizon, and from neutral to strongly alkaline in the B22 horizon and underlying horizons.

The A1 horizon has hue of 10YR, value of 4 or 5, and chroma of 2, or value of 3 and chroma of 3. The A2g horizon has hue of 2.5Y or 10YR, value of 6, and chroma of 1 or 2. Mottles are in shades of yellow or brown.

The B&A horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2. It is silt loam or silty clay loam.

The B2tg and B3g horizons have hue of 10YR, 2.5Y, or 5Y, value of 4, 5, or 6, and chroma of 2. Mottles are in shades of yellow, brown, and red. These horizons are silt loam or silty clay loam.

Forbing Series

The Forbing series consists of deep, moderately well drained, nearly level to gently sloping soils that formed in clayey alluvium. Permeability is very slow. These soils are on dissected stream terraces in the Coastal Plains. The native vegetation is mixed pine and hardwoods. Slopes range from 1 to 8 percent.

Forbing soils are geographically associated with Gore, Louin, McKamie, Morse, and Wrightsville soils. Gore, McKamie, and Morse soils are in positions on the landscape similar to those of Forbing soils. Gore soils have grayish subhorizons. McKamie soils are well drained and decrease in clay within 60 inches of the surface. Morse soils are well drained and are calcareous throughout. Louin and Wrightsville soils are on broad

flats of terraces at lower elevations. Louin soils are somewhat poorly drained, and Wrightsville soils are poorly drained.

Typical pedon of Forbing silt loam, 3 to 8 percent slopes, in a moist wooded area in the NE1/4SW1/4NW1/4 sec. 14, T. 19 S., R. 24 W.; in Lafayette County:

A1—0 to 3 inches; dark grayish brown (10YR 4/2) silt loam; common fine distinct dark yellowish brown (10YR 3/4) mottles; weak medium granular structure; very friable; common medium roots; medium acid; clear smooth boundary.

A12—3 to 5 inches; dark brown (10YR 4/3) silt loam; common fine distinct dark yellowish brown (10YR 3/4) mottles; weak medium granular structure; very friable; common medium roots; few iron and manganese concretions; medium acid; clear smooth boundary.

B21t—5 to 22 inches; yellowish red (5YR 4/6) clay; moderate medium subangular blocky structure; firm; few slickensides that do not intersect; common fine roots; medium acid; gradual smooth boundary.

B22t—22 to 35 inches; yellowish red (5YR 4/6) clay; moderate medium subangular blocky structure; very firm; few shiny pressure faces; few fine roots; common calcium carbonate concretions; neutral; gradual smooth boundary.

B23t—35 to 51 inches; yellowish red (5YR 4/6) clay; weak medium subangular blocky structure; very firm; few shiny pressure faces; few fine roots; common fine calcium carbonate concretions; mildly alkaline; calcareous; gradual smooth boundary.

B3—51 to 65 inches; red (2.5YR 4/6) clay; weak medium subangular blocky structure; very firm; few slickensides that do not intersect; mildly alkaline; calcareous; gradual smooth boundary.

C—65 to 80 inches; red (2.5YR 4/6) silty clay; massive; very firm; few shiny pressure faces; mildly alkaline; calcareous.

The solum thickness ranges from 60 to 80 inches. Depth to the clayey B21t horizon ranges from 3 to 9 inches. Reaction ranges from strongly acid to slightly acid in the A horizon. It ranges from medium acid to neutral in the upper part of the B horizon and from neutral to moderately alkaline in the lower part. The C horizon is mildly alkaline or moderately alkaline.

The A horizon ranges from 3 to 9 inches in thickness. It has hue of 10YR, value of 4, and chroma of 2 or 3.

The B2t horizon has hue of 2.5YR or 5YR, value of 4, and chroma of 6; or it has hue of 5YR, value of 5, and chroma of 6. Colors in the B3 and C horizons are similar to those of the B2t horizon. These horizons are silty clay or clay.

Gladewater Series

The Gladewater series consists of deep, poorly drained, level soils that formed in clayey sediment. Permeability is very slow. These soils are on the Sulphur River flood plain. The native vegetation was mixed hardwoods. Slope is dominantly less than 1 percent.

Gladewater soils are geographically associated with Billyhaw, Perry, and Yorktown soils. Billyhaw soils are at a slightly higher elevation than Gladewater soils. They are somewhat poorly drained. Perry soils are at a similar elevation. They have a very-fine control section and are underlain by red clay at a depth of about 24 inches. Yorktown soils are in old oxbow lakes. They are ponded for 10 months of most years and are very poorly drained.

Typical pedon of Gladewater clay, frequently flooded, in a moist wooded area in the SE1/4SE1/4NE1/4 sec. 28, T. 17 S., R. 28 W.; in Miller County:

A1—0 to 7 inches; black (10YR 2/1) clay; moderate medium subangular blocky structure; very firm; sticky and plastic when wet; strongly acid; clear smooth boundary.

B21g—7 to 16 inches; gray (10YR 6/1) clay; common medium distinct yellowish brown (10YR 5/6) and prominent yellowish red (5YR 4/8) mottles; moderate medium subangular blocky structure; very firm; sticky and plastic when wet; strongly acid; gradual smooth boundary.

B22g—16 to 42 inches; gray (10YR 6/1) clay; few medium distinct yellowish brown (10YR 5/6) and common medium prominent yellowish red (5YR 4/6) mottles; moderate medium subangular blocky structure; very firm; sticky and plastic when wet; strongly acid; gradual smooth boundary.

Cg—42 to 72 inches; gray (10YR 5/1) clay; few fine distinct yellowish brown (10YR 5/6) mottles; massive; very firm; sticky and plastic when wet; strongly acid.

The solum thickness ranges from 20 to about 50 inches. Reaction ranges from medium acid to very strongly acid, but it is strongly acid or medium acid in some parts of the control section.

The A horizon ranges from 7 to 10 inches in thickness. It has hue of 10YR, value of 2 or 3, and chroma of 1.

The B2g horizons have hue of 10YR, value of 5 or 6, and chroma of 1; or they have hue of 2.5Y, value of 5, and chroma of 2. Mottles are few to common, distinct or prominent, and in shades of yellow, brown, or red.

The Cg horizon has hue of 10YR, value of 4, 5, or 6, and chroma of 1. Yellowish brown or strong brown mottles are in some pedons.

Gore Series

The Gore series consists of deep, moderately well drained soils that developed in clayey alluvium. Permeability is very slow. These soils are on nearly level to gently sloping terraces in the Coastal Plains. The native vegetation was mixed hardwoods and pine. Slopes range from 1 to 8 percent.

Gore soils are geographically associated with Acadia, Forbing, Kamie, McKamie, Morse, and Muskogee soils. Acadia soils are at a lower elevation. They are somewhat poorly drained. Forbing, McKamie, Morse, and Muskogee soils are in positions on the landscape similar to those of Gore soils. Forbing soils do not have grayish subhorizons, McKamie and Morse soils are well drained, and Muskogee soils have a fine-silty control section. Kamie soils are on hillsides and hilltops. They are well drained and have a fine-loamy control section.

Typical pedon of Gore silt loam, 1 to 3 percent slopes, in a moist wooded area in the SE1/4SE1/4SW1/4 sec. 16, T. 18 S., R. 27 W.; in Miller County:

A1—0 to 2 inches; dark brown (10YR 4/3) silt loam; moderate medium granular structure; very friable; strongly acid; clear smooth boundary.

A2—2 to 7 inches; pale brown (10YR 6/3) silt loam; few fine distinct yellowish brown (10YR 5/8) mottles; moderate medium granular structure; very friable; strongly acid; abrupt smooth boundary.

B21t—7 to 14 inches; yellowish red (5YR 4/6) clay; common fine prominent light yellowish brown (10YR 6/4) mottles; moderate medium subangular blocky structure; very firm; continuous clay films on faces of peds; very strongly acid; clear smooth boundary.

B22t—14 to 32 inches; light brownish gray (2.5Y 6/2) clay; common medium prominent red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; very firm; continuous clay films on faces of peds; very strongly acid; gradual smooth boundary.

B23t—32 to 50 inches; mottled light brownish gray (2.5Y 6/2) and red (2.5YR 4/8) clay; moderate medium subangular blocky structure; very firm; continuous clay films on faces of peds; very strongly acid; clear smooth boundary.

B3—50 to 60 inches; red (2.5YR 4/6) clay; weak medium subangular blocky structure; very firm; few patchy clay films on faces of peds; medium acid; clear smooth boundary.

C—60 to 72 inches; yellowish red (5YR 4/6) clay; weak medium subangular blocky structure; firm; few thin strata of yellowish red (5YR 4/6) silty clay loam; medium acid; clear smooth boundary.

The solum thickness ranges from 40 to 60 inches. Reaction is medium acid or strongly acid in the A horizon and very strongly acid or strongly acid in the B21t, B22t, and B23t horizons. The B3 horizon ranges from medium acid to neutral, and the C horizon ranges from medium acid to mildly alkaline.

The A horizon ranges from 3 to 9 inches in thickness. The A1 horizon has hue of 10YR, value of 3, and chroma of 2 or value of 4 or 5 and chroma of 2 or 3. The A2 horizon, where present, has hue of 10YR, value of 5 or 6, and chroma of 3.

The B21t horizon has hue of 2.5YR, value of 4, and chroma of 4 or 6; or it has hue of 5YR, value of 4, and chroma of 6. The B22t and B23t horizons have hue of 2.5Y, value of 6, and chroma of 2; or they have hue of 10YR, value of 6, and chroma of 1; or hue of 2.5YR and 5YR, value of 4, and chroma of 6. The B3 horizon has hue of 2.5YR, value of 4, and chroma of 6; or it has hue of 5YR, value of 4, and chroma of 6 or 8; or hue of 10YR, value of 6, and chroma of 1. Mottles in the B horizons are in shades of red, gray, and brown. These horizons are clay or silty clay.

The C horizon has hue of 2.5YR, value of 3, chroma of 6, or value of 4 and chroma of 6 or 8; or it has hue of 5YR, value of 4 or 5, and chroma of 6 or 8. It is clay or silty clay.

Guyton Series

The Guyton series consists of deep, poorly drained, level soils on flood plains in the Coastal Plains. These soils formed in silty alluvial sediment. The native vegetation was mixed hardwoods and a few pine. Slopes are 0 to 1 percent.

Guyton soils are geographically associated with Adaton, Felker, Gore, McKamie, Ouachita, Ruston, and Sardis soils. Adaton and Felker soils are on low terraces. They do not have tonguing of the A2 horizon into the B horizon, and, in addition, Felker soils are somewhat poorly drained. Gore, McKamie, and Ruston soils are on uplands adjacent to Guyton soils. Gore soils are moderately well drained and have a fine control section, McKamie soils are well drained and have a fine control section, and Ruston soils are well drained and have a fine-loamy control section. Ouachita and Sardis soils are on flood plains at higher elevations. Ouachita soils are well drained, and Sardis soils are somewhat poorly drained.

Typical pedon of Guyton silt loam, frequently flooded, in a moist wooded area in the NE1/4SW1/4NE1/4 sec. 14, T. 17 S., R. 24 W.; in Lafayette County:

A1—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam; few medium distinct dark yellowish brown (10YR 4/4) mottles; weak medium granular structure; friable; very strongly acid; clear smooth boundary.

A21g—4 to 10 inches; gray (10YR 6/1) silt loam; common medium distinct yellowish brown (10YR 5/4) mottles; weak medium subangular blocky

structure; common black concretions; friable; very strongly acid; clear smooth boundary.

A22g—10 to 19 inches; gray (10YR 6/1) silt loam; few medium distinct dark yellowish brown (10YR 4/4) mottles; weak medium subangular blocky structure; few black concretions; friable; tongues of gray (10YR 6/1) silt loam extend into B horizon; very strongly acid; abrupt irregular boundary.

B2g&A2—19 to 25 inches; gray (10YR 6/1) silty clay loam; common medium distinct yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; few black concretions; friable; tongues of gray (10YR 6/1) silt loam make up about 15 percent of horizon; very strongly acid; clear smooth boundary.

B22tg—25 to 35 inches; gray (10YR 6/1) silty clay loam; common medium distinct yellowish brown (10YR 5/8) and common fine distinct strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; common iron and manganese concretions 2 to 4 millimeters in diameter; firm; very strongly acid; clear smooth boundary.

B23tg—35 to 47 inches; gray (10YR 6/1) silt loam; common fine distinct yellowish brown (10YR 5/8) and common medium distinct brown (10YR 5/3) mottles; weak medium subangular blocky structure; few iron and manganese concretions; friable; medium acid; clear smooth boundary.

B24tg—47 to 60 inches; gray (10YR 6/1) silt loam; common medium distinct yellowish brown (10YR 5/8) and common medium distinct brown (10YR 5/3) mottles; weak medium subangular blocky structure; friable; medium acid; gradual smooth boundary.

B3g—60 to 73 inches; gray (10YR 6/1) silt loam; common medium distinct yellowish brown (10YR 5/4, 5/8) mottles; weak medium subangular blocky structure; friable; medium acid; gradual smooth boundary.

Cg—73 to 80 inches; gray (10YR 6/1) silt loam; common medium distinct yellowish brown (10YR 5/4, 5/8) mottles; massive; friable; mildly alkaline.

The solum thickness ranges from 50 to 80 inches. Reaction ranges from very strongly acid to medium acid in the A and B horizons and from strongly acid to mildly alkaline in the C horizon.

The combined thickness of the A horizon ranges from 12 to 28 inches. The A1 horizon has hue of 10YR, value of 4, 5, or 6, and chroma of 2. The A2 horizon has hue of 10YR, value of 5, 6, or 7, and chroma of 2, or value of 6 and chroma of 1; or it has hue of 2.5Y, value of 5 or 6, and chroma of 2.

The B2tg horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. The B2t horizon is silt loam or silty clay loam. Mottles are in shades of brown, yellow, and gray.

The color range and texture in the B3g and Cg horizons are similar to those of the B2tg horizon.

Harleston Series

The Harleston series consists of deep, moderately well drained, nearly level soils on hilltops, hillsides, and low terraces. Permeability is moderate. These soils formed in thick, loamy marine or alluvial sediment in the Coastal Plains. The native vegetation was hardwoods or mixed hardwoods and pine. Slopes are 1 to 3 percent.

Harleston soils are geographically associated with Ruston, Smithton, and Felker soils. Ruston soils are at a slightly higher elevation than Harleston soils. They have a fine-loamy control section and are well drained. Felker soils are on broad upland flats. They have a fine-silty control section and are somewhat poorly drained. Smithton soils are on upland flats at a lower elevation. They are poorly drained.

Typical pedon of Harleston fine sandy loam, 1 to 3 percent slopes, in a moist wooded area in the NW1/4SE1/4SE1/4 sec. 12, T. 12 S., R. 31 W.; in Little River County:

A1—0 to 2 inches; dark grayish brown (10YR 4/2) fine sandy loam; few fine distinct light yellowish brown (10YR 6/4) and few medium distinct dark yellowish brown (10YR 4/4) mottles; moderate medium granular structure; very friable; medium acid; clear smooth boundary.

A2—2 to 7 inches; light yellowish brown (10YR 6/4) fine sandy loam; weak medium granular structure; very friable; many medium and large roots; few small gravel; strongly acid; gradual smooth boundary.

B1—7 to 18 inches; yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure; very friable; common medium and fine roots; common medium and fine pores; few strippings of uncoated sand grains on ped faces; strongly acid; gradual smooth boundary.

B21t—18 to 26 inches; yellowish brown (10YR 5/4) fine sandy loam; few fine distinct light gray and common medium faint light yellowish brown (10YR 6/4) mottles; weak medium subangular blocky structure; friable; sand grains bridged and coated with clay; strippings of uncoated sand grains on vertical faces of peds; common fine roots; many medium and fine pores; very strongly acid; gradual smooth boundary.

B22t—26 to 35 inches; yellowish brown (10YR 5/8) loam; common medium distinct light gray (10YR 7/2) mottles; moderate medium subangular blocky structure; friable; thin patchy clay films on faces of peds; few thin strippings of uncoated sand grains on vertical ped faces; few small gravel fragments; common fine pores; very strongly acid; gradual smooth boundary.

B23t—35 to 42 inches; yellowish brown (10YR 5/4) loam; common medium distinct pale brown (10YR 6/3) and light gray (10YR 7/2) mottles; moderate medium subangular blocky structure; slightly brittle; few medium and fine roots; few iron and manganese concretions; very strongly acid; gradual smooth boundary.

B24t—42 to 58 inches; yellowish brown (10YR 5/4) loam; common medium distinct light gray (10YR 7/2), yellowish brown (10YR 5/8), and yellowish red (5YR 5/8) mottles; yellowish brown and yellowish red vertical streaks; moderate medium subangular blocky structure; 20 percent of matrix is brittle; common iron and manganese concretions; common medium and fine pores; few strippings of uncoated sand grains on vertical faces of peds; very strongly acid; gradual smooth boundary.

B25t—58 to 80 inches; mottled gray (10YR 6/1), yellowish brown (10YR 5/8), and red (2.5YR 4/8) loam; yellow and red vertical streaks; weak medium prismatic parting to moderate medium subangular blocky structure; firm; 25 percent by volume of matrix is brittle; many iron and manganese concretions; uncoated sand grains on vertical faces of peds; many medium and fine pores; very strongly acid.

The solum thickness exceeds 60 inches. Reaction is very strongly acid or strongly acid except in areas where the soils have been limed.

The A horizon ranges from 5 to 12 inches in thickness. The A1 or Ap horizon has hue of 10YR, value of 4, and chroma of 2 or 3, or value of 5 and chroma of 3. The A2 horizon has hue of 10YR, value of 4, and chroma of 2, or value of 5 or 6 and chroma of 3 or 4.

The B1 horizon has hue of 10YR or 2.5Y, value of 5, and chroma of 4 or 6. It is fine sandy loam or loam. The B21t and B22t horizons have hue of 10YR, value of 5 or 6, and chroma of 4, or value of 6 and chroma of 6; or they have hue of 10YR or 7.5YR, value of 5, and chroma of 6 or 8. These horizons are fine sandy loam, sandy loam, or loam. Mottles are in shades of gray, brown, and red. The B23t, B24t, and B25t horizons have hue of 10YR, value of 5, and chroma of 4, 6, or 8; or they have hue of 7.5YR, value of 5, and chroma of 6 or 8. Mottles are in shades of gray, brown, and red, or the horizons are mottled in shades of gray, brown, and red.

Houston Series

The Houston series consists of deep, moderately well drained, nearly level to gently sloping soils that formed in alkaline clays and chalk in the Blackland Prairies. Permeability is very slow. These soils are on hilltops and hillsides. The native vegetation is prairie grasses, Bois d'Arc, and eastern redcedar. Slopes range from 1 to 8 percent.

Houston soils are geographically associated with Catalpa, Demopolis, Kipling, and Sumter soils. Catalpa soils are at a lower elevation than Houston soils. They are less than 60 percent clay in the control section and are somewhat poorly drained. Demopolis, Kipling, and Sumter soils are in positions on the landscape similar to those of Houston soils. Demopolis soils are shallow to chalk, Kipling soils have argillic horizons and are somewhat poorly drained, and Sumter soils are shallow to chalk and are somewhat poorly drained.

Typical pedon of Houston clay, 3 to 8 percent slopes, in a moist pasture in the NW1/4SW1/4NW1/4 sec. 29, T. 12 S., R. 32 W.; in Little River County:

Ap—0 to 5 inches; very dark gray (10YR 3/1) clay; weak medium subangular blocky structure; firm; sticky and plastic; mildly alkaline; clear smooth boundary.

A12—5 to 25 inches; very dark gray (10YR 3/1) clay; moderate medium subangular blocky structure; firm; sticky and plastic; mildly alkaline; clear smooth boundary.

AC—25 to 41 inches; olive gray (5Y 4/2) clay; common medium distinct dark grayish brown (2.5Y 4/2) mottles; weak medium subangular blocky structure; very firm; sticky and plastic; common slickensides which intersect; few iron and calcium carbonate concretions; mildly alkaline; clear smooth boundary.

C1—41 to 60 inches; mottled gray (10YR 5/1), yellowish brown (10YR 5/8), and light olive brown (2.5Y 5/4) clay; massive; few iron and manganese concretions; very firm; sticky and plastic; common calcium carbonate concretions; calcareous; moderately alkaline; gradual smooth boundary.

C2—60 to 72 inches; mottled gray (10YR 5/1), yellowish brown (10YR 5/8), and light olive brown (2.5Y 5/4) clay; massive; common iron and managanese concretions; very firm; sticky and plastic; common calcium carbonate concretions; calcareous; moderately alkaline.

Depth to soft chalk ranges from 48 inches to more than 72 inches. Reaction ranges from slightly acid to mildly alkaline in the A horizon and from neutral to moderately alkaline in the AC and C horizons. Few to many calcium carbonate concretions are in the AC and C horizons.

The A horizon has hue of 10YR, value of 3, and chroma of 1 or 2.

The AC horizon has hue of 5Y, value of 4 or 5, and chroma of 2. This horizon has mottles that have hue of 2.5Y, value of 4, and chroma of 2.

The C horizon is mottled in shades of gray, yellow, and brown.

These Houston soils were correlated as taxadjuncts to the Houston series in this survey because they have lower chroma than that specified in the series

description. The acreage is small, and the interpretations are satisfactory.

Kamie Series

The Kamie series consists of deep, well drained, nearly level to moderately steep soils on hillsides and hilltops. Permeability is moderate. These soils formed in thick beds of loamy marine or alluvial sediment in the Coastal Plains. The native vegetation was mixed pine and hardwoods. Slopes range from 1 to 20 percent.

Kamie soils are geographically associated with Acadia, Foley, Gore, McKamie, and Wrightsville soils. Acadia and Wrightsville soils are on broad flats. Acadia soils are somewhat poorly drained, and Wrightsville soils are poorly drained. Both soils have fine control sections. Foley, Gore, and McKamie soils are on terraces. Foley soils are poorly drained, and Gore soils are moderately well drained. Foley soils have a fine-silty control section, and Gore and McKamie soils have fine control sections.

Typical pedon of Kamie fine sandy loam, 1 to 3 percent slopes, in a soybean field in the NW1/4SE1/4NE1/4 sec. 31, T. 12 S., R. 30 W.; in Little River County:

Ap—0 to 7 inches; brown (10YR 4/3) fine sandy loam; moderate medium granular structure; very friable; medium acid; clear smooth boundary.

A2—7 to 11 inches; yellowish brown (10YR 5/4) fine sandy loam; common fine distinct brown (10YR 4/3) mottles; weak medium subangular blocky structure; very friable; medium acid; clear smooth boundary.

B21t—11 to 31 inches; yellowish red (5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; strongly acid; gradual smooth boundary.

B22t—31 to 41 inches; yellowish red (5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; very strongly acid; gradual smooth boundary.

B23t—41 to 57 inches; yellowish red (5YR 4/6) sandy clay loam; common medium distinct light yellowish brown (10YR 6/4) mottles; moderate medium subangular blocky structure; friable; very strongly acid; gradual smooth boundary.

B24t—57 to 80 inches; yellowish red (5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; few pockets of light yellowish brown (10YR 6/4) uncoated sand grains; very strongly acid; gradual smooth boundary.

The solum thickness is more than 60 inches. Reaction is medium acid or slightly acid in the A horizon and ranges from medium acid to very strongly acid in the B horizon.

The A horizon ranges from 8 to 20 inches in thickness. The A1 or Ap horizon has hue of 10YR, value of 4, and chroma of 2 or 3, or value of 5 and chroma of 3. The A2 horizon has hue of 10YR, value of 4, 5, or 6, and chroma of 3 or 4.

The B1 horizon, where present, has hue of 7.5YR, value of 4 or 5, and chroma of 4; or it has hue of 5YR, value of 4, and chroma of 6. The B2t horizon has hue of 5YR, value of 4 or 5, and chroma of 6 or 8; or it has hue of 2.5YR, value of 4 or 5, and chroma of 6 or 8. These horizons are clay loam or sandy clay loam.

Kiomatia Series

The Kiomatia series consists of deep, well drained, gently undulating soils that formed in calcareous, sandy alluvium. Permeability is rapid. These soils are on low-lying terraces along the Red River. These soils are frequently flooded each year, usually during winter and spring. The native vegetation is cottonwood and willow. Slopes range from 0 to 3 percent.

The Kiomatia soils are geographically associated with Severn and Oklared soils. Severn and Oklared soils are on the natural levees adjacent to Kiomatia soils. Severn soils have a coarse-silty control section, and Oklared soils have a coarse-loamy control section.

Typical pedon of Kiomatia loamy fine sand, frequently flooded, in a moist idle area in the SW1/4NW1/4NE1/4 sec. 19, T. 18 S., R. 25 W.; in Miller County:

A1—0 to 7 inches; reddish brown (5YR 4/4) loamy fine sand; weak fine granular structure; very friable; calcareous; mildly alkaline; clear smooth boundary.

C1—7 to 15 inches; brown (7.5YR 5/4) loamy very fine sand; massive; very friable; calcareous; mildly alkaline; gradual smooth boundary.

C2—15 to 25 inches; light brown (7.5YR 6/4) loamy fine sand; massive; very friable; calcareous; mildly alkaline; gradual smooth boundary.

C3—25 to 48 inches; brown (7.5YR 5/4) loamy sand; massive; very friable; calcareous; mildly alkaline; gradual smooth boundary.

C4—48 to 55 inches; reddish brown (5YR 5/4) silt loam; massive; very friable; common bedding planes; calcareous; mildly alkaline; gradual smooth boundary.

C5—55 to 60 inches; reddish brown (5YR 5/4) very fine sandy loam; massive; very friable; common bedding planes; calcareous; mildly alkaline.

Reaction is moderately alkaline or mildly alkaline throughout. These soils are calcareous.

The A horizon ranges from 4 to 8 inches in thickness. It has hue of 5YR, value of 4, and chroma of 4; or it has hue of 7.5YR, value of 5, and chroma of 4.

The C horizon has hue of 7.5YR, value of 5, 6, and 7, and chroma of 4; or it has hue of 5YR, value of 5 and 6, and chroma of 4. It is loamy fine sand, loamy sand, fine sandy loam, very fine sandy loam, or silt loam.

Kipling Series

The Kipling series consists of deep, somewhat poorly drained, nearly level to gently sloping soils that formed in acid clay underlain with chalk or marl. Permeability is very slow. These soils are on hilltops and hillsides in areas in the Coastal Plains and Blackland Prairies. The native vegetation was mixed hardwoods and pine. Slopes range from 2 to 5 percent.

Kipling soils are geographically associated with Houston and Oktibbeha soils. Houston soils are in positions on the landscape similar to those of Kipling soils, and Oktibbeha soils are at a slightly higher elevation. Both soils are moderately well drained.

Typical pedon of Kipling silt loam, 2 to 5 percent slopes, in a moist wooded area in the NE1/4NE1/4NE1/4 sec. 6, T. 12 S., R. 32 W.; in Little River County:

A1—0 to 3 inches; dark grayish brown (10YR 4/2) silt loam; moderate medium granular structure; friable; many fine roots; strongly acid; clear smooth boundary.

B21t—3 to 10 inches; yellowish brown (10YR 5/6) silty clay loam; common fine distinct light yellowish brown mottles; weak medium subangular blocky structure; firm; few fine roots; few fine black concretions; very strongly acid; clear wavy boundary.

B22t—10 to 18 inches; yellowish brown (10YR 5/6) silty clay; few fine distinct light brownish gray mottles; moderate medium subangular blocky structure; firm; sticky and plastic; very strongly acid; clear smooth boundary.

B23t—18 to 30 inches; mottled light brownish gray (10YR 6/2), yellowish brown (10YR 5/6), and red (2.5YR 4/6) silty clay; moderate medium subangular blocky structure; firm; sticky and plastic; few black concretions; very strongly acid; clear wavy boundary.

B3—30 to 42 inches; mottled dark red (2.5YR 3/6), light gray (10YR 6/1), and yellowish brown (10YR 5/6) clay; strong medium subangular blocky structure; very firm; sticky and plastic; few small gravel; very strongly acid; gradual wavy boundary.

C1g—42 to 50 inches; light gray (10YR 6/1) clay; common medium distinct yellowish brown (10YR 5/6) and common medium prominent yellowish red (5YR 5/6) mottles; massive; very firm; sticky and plastic; few small gravel; very strongly acid; gradual wavy boundary.

C2g—50 to 68 inches; light gray (10YR 6/1) clay; common medium distinct yellowish brown (10YR 5/6) mottles; massive; very firm; sticky and plastic; common black concretions; strongly acid; gradual wavy boundary.

C3g—68 to 80 inches; light gray (10YR 6/1) silty clay; common medium distinct yellowish brown (10YR 5/6) mottles; massive; very firm; sticky and plastic; few small lime concretions; mildly alkaline.

The solum thickness ranges from 25 to 55 inches. Depth to marl ranges from 36 inches to more than 80 inches. Reaction in the A and Bt horizons ranges from medium acid to very strongly acid. Reaction in the B3 and C horizons ranges from very strongly acid through moderately alkaline.

The A horizon is 3 to 9 inches thick. The A1 horizon has hue of 10YR, value of 4, and chroma of 2, or value of 3 and chroma of 3. The A2 horizon, where present, has hue of 10YR, value of 5 or 6, and chroma of 3.

The B2t horizon has hue of 10YR, value of 5, and chroma of 4 or 6; or it has hue of 5YR, value of 4 or 5, and chroma of 6; or the B2t horizon is mottled in shades of yellow, brown, gray, and red. It is silty clay loam, silty clay, or clay. In some pedons the lower part of the B2t horizon and the B3 and C horizons have hue of 10YR, value of 6 or 7, and chroma of 1 or 2; or the B3 and C horizons are mottled in shades of yellow, red, brown, and gray. The B3 horizon and C horizon are silty clay or clay.

Latanier Series

The Latanier series consists of deep, somewhat poorly drained, gently undulating soils that formed in clayey sediment over loamy alluvium along the Red River and its former channels. Permeability is very slow. The native vegetation was mixed hardwoods. Slopes range from 0 to 3 percent.

Latanier soils are geographically associated with Billyhaw, Perry, and Rilla soils. Billyhaw soils are in positions on the landscape similar to those of Latanier soils. They do not have contrasting textures within 40 inches of the surface. Perry soils are at a slightly lower elevation. They do not have contrasting textures and are poorly drained. Rilla soils are on natural levees. They are well drained and have a fine-silty control section.

Typical pedon of Latanier clay, gently undulating, in a moist pasture in the SW1/4SE1/4NW1/4 sec. 17, T. 14 S., R. 28 W.; in Miller County:

Ap—0 to 4 inches; dark reddish brown (5YR 3/3) clay; weak medium subangular block structure; firm; mildly alkaline; clear smooth boundary.

B21—4 to 12 inches; dark reddish brown (5YR 3/3) clay; moderate medium subangular blocky structure; very firm; common pressure faces on peds; calcareous; mildly alkaline; gradual smooth boundary.

B22—12 to 29 inches; dark reddish brown (5YR 3/3) clay; moderate medium subangular blocky structure; very firm; many pressure faces on peds; calcareous; mildly alkaline; clear smooth boundary.

IIC1—29 to 39 inches; yellowish red (5YR 4/6) silt loam; massive; friable; calcareous; mildly alkaline; gradual smooth boundary.

IIC2—39 to 57 inches; yellowish red (5YR 4/8) very fine sandy loam; massive; friable; calcareous; mildly alkaline; gradual smooth boundary.
IIC3—57 to 66 inches; yellowish red (5YR 4/8) loamy very fine sand; massive; friable; calcareous; mildly alkaline; clear smooth boundary.
IIC4—66 to 82 inches; reddish brown (5YR 4/4) very fine sandy loam; massive; friable; calcareous; mildly alkaline.

The solum thickness and depth to contrasting textures range from 20 to 40 inches. Reaction ranges from neutral to moderately alkaline throughout. These soils are usually calcareous throughout.

The A horizon ranges from 4 to 8 inches in thickness. It has hue of 5YR, value of 3, and chroma of 2 or 3.

The B horizon has hue of 5YR, value of 3 or 4, and chroma of 3 or 4. Texture is clay or silty clay.

The IIC horizon has hue of 5YR, value of 4 or 5, and chroma of 4, 6, or 8. It is stratified silt loam, fine sandy loam, very fine sandy loam, or loamy very fine sand. Strata of dark red clay less than 3 inches thick may be present in some horizons.

Latonia Series

The Latonia series consists of deep, well drained, nearly level to gently sloping soils on stream terraces. Permeability is moderately rapid. These soils formed in sandy sediment on marine or stream terraces in the Coastal Plains. The native vegetation was loblolly pine and hardwoods. Slopes range from 2 to 5 percent.

Latonia soils are geographically associated with the Ruston and Sacul soils. Ruston and Sacul soils are at higher elevations than Latonia soils. Ruston soils have a fine-loamy control section and are bisequal, and Sacul soils are moderately well drained and have a clayey control section.

Typical pedon of Latonia loamy fine sand, 2 to 5 percent slopes, in a moist pasture area, in the SW1/4SE1/4NW1/4 sec. 16, T. 16 S., R. 26 W.; in Miller County:

Ap—0 to 6 inches; brown (10YR 5/3) loamy fine sand; weak medium granular structure; very friable; medium acid; clear smooth boundary.
A2—6 to 17 inches; light yellowish brown (10YR 6/4) loamy fine sand; weak medium granular structure; very friable; slightly acid; clear smooth boundary.
B21t—17 to 32 inches; strong brown (7.5YR 5/8) fine sandy loam; weak medium subangular blocky structure; very friable; sand grains coated and bridged with clay; strongly acid; gradual wavy boundary.
B22t—32 to 38 inches; strong brown (7.5YR 5/8) fine sandy loam; pockets of pale brown (10YR 6/3) uncoated sand grains; weak medium subangular blocky structure; very friable; sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.
B23t—38 to 45 inches; strong brown (7.5YR 5/8) fine sandy loam; weak medium subangular blocky structure; very friable; sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.
C—45 to 72 inches; pale brown (10YR 6/3) loamy sand; single grain; very friable; very strongly acid.

The solum thickness ranges from 20 to 45 inches. Reaction is strongly acid or very strongly acid throughout except in areas where the soils have been limed.

The A horizon ranges from 6 to 18 inches in thickness. The A1 horizon has hue of 10YR, value of 4 or 5, and chroma of 2, or value of 5 and chroma of 3. The A2 horizon has hue of 10YR, value of 5 or 6, and chroma of 4.

The B2t horizon has hue of 10YR, value of 5 or 6, and chroma of 4 or 6; or it has hue of 7.5YR, value of 5, and chroma of 6 or 8. Few to common mottles in shades of red, brown, and yellow are present in some pedons.

The C horizon has hue of 10YR, value of 6, and chroma of 3, 4, or 6; or it has hue of 7.5YR, value of 5, and chroma of 8. It is loamy sand or sand.

Louin Series

The Louin series consists of deep, somewhat poorly drained, level soils that formed in acid, clayey sediment. Permeability is very slow. These soils are on broad flat terraces in the Coastal Plains. The native vegetation is mixed pine and hardwoods. Slopes are 0 to 1 percent.

Louin soils are geographically associated with Acadia, Forbing, Gore, McKamie, and Wrightsville soils. Acadia soils are on slightly convex landscapes. They have an argillic horizon and do not have intersecting slickensides. Forbing and Gore soils are on terraces. They are moderately well drained. McKamie soils are on gently sloping to moderately steep, dissected stream terraces. They are well drained. Wrightsville soils are in positions on the landscape similar to those of Louin soils. They are poorly drained and have an A2 horizon that tongues into the argillic horizon.

Typical pedon of Louin silty clay loam, 0 to 1 percent slopes, in a microbasin in a wooded area in the SW1/4NW1/4SE1/4 sec. 2, T. 20 S., R. 25 W.; in Lafayette County:

A1—0 to 2 inches; dark gray (10YR 4/1) silty clay loam; common fine faint dark brown mottles; weak medium subangular blocky structure; firm; common medium roots; very strongly acid; abrupt smooth boundary.
A12—2 to 9 inches; gray (10YR 6/1) silty clay loam; common fine distinct strong brown (7.5YR 5/8) and yellowish red (5YR 4/6) mottles; moderate medium

subangular blocky structure; firm; common medium roots; very strongly acid; clear smooth boundary.

AC1—9 to 23 inches; light brownish gray (10YR 6/2) clay; common medium prominent strong brown (7.5YR 5/6) mottles; moderate medium angular blocky structure; very firm; few pressure faces on peds; few slickensides; common medium and fine roots; very strongly acid; gradual smooth boundary.

AC2—23 to 31 inches; light brownish gray (10YR 6/2) clay; common medium prominent strong brown (7.5YR 5/8) mottles; intersecting slickensides border wedge shaped structural aggregates parting to moderate medium angular blocky structure; very firm; few fine roots; very strongly acid; gradual smooth boundary.

AC3—31 to 42 inches; gray (10YR 6/1) clay; common fine prominent strong brown (7.5YR 5/8) mottles; intersecting slickensides border wedge shaped structural aggregates parting to moderate medium angular blocky structure; very firm; very strongly acid; gradual smooth boundary.

AC4—42 to 57 inches; light brownish gray (10YR 6/2) clay; common medium prominent strong brown (7.5YR 5/8) mottles; intersecting slickensides border wedge shaped structural aggregates parting to moderate medium angular blocky structure; very firm; very strongly acid; gradual smooth boundary.

AC5—57 to 70 inches; light brownish gray (10YR 6/2) clay; common fine prominent yellowish red (5YR 5/8) mottles; weak medium subangular blocky structure; common intersecting slickensides; very firm; strongly acid; gradual smooth boundary.

The solum thickness is 50 inches or more. Depth to intersecting slickensides ranges from 14 to 36 inches. Reaction is strongly acid or very strongly acid in the A and AC horizons and ranges from medium acid to mildly alkaline in the C horizon. In undisturbed areas the surface consists of cycles of microbasins and microknolls, repeated at 8- to 18-foot intervals. Microbasins are 3 to 10 inches lower than microknolls. They range from 36 to 96 inches across, and make up 45 to 55 percent of the pedon dimension.

In the microbasins the A11 horizon has hue of 10YR, value of 3 or 4, and chroma of 1. The A12 horizon has hue of 10YR, value of 4, 5, or 6, and chroma of 1. The upper part of the AC horizon has hue of 2.5Y or 10YR, value of 6, and chroma of 2. The lower part has hue of 10YR, value of 5 or 6, and chroma of 1; or it has hue of 2.5Y or 10YR, value of 6, and chroma of 2; or it is mottled in shades of gray and brown.

In the microknolls the A horizon has hue of 10YR, value of 3 or 4, and chroma of 2, or value of 4 and chroma of 3. The upper part of the AC horizon has hue of 2.5Y or 10YR, value of 5, and chroma of 4 or 6. The lower part has colors similar to those in the lower part of the AC horizon in the microbasins. The AC horizon is silty clay or clay.

McKamie Series

The McKamie series consists of deep, well drained, nearly level to moderately steep soils that formed in clayey alluvium. Permeability is very slow. These soils are on dissected stream terraces in the Coastal Plains. The native vegetation is mixed pine and hardwoods. Slopes range from 2 to 20 percent.

McKamie soils are geographically associated with Acadia, Forbing, Gore, Kamie, and Muskogee soils. Acadia soils are on terraces at a lower elevation than McKamie soils. They are somewhat poorly drained. Forbing, Gore, and Muskogee soils are in positions on the landscape similar to those of McKamie soils. Forbing and Gore soils are moderately well drained and do not decrease in clay within 60 inches of the surface. Muskogee soils are moderately well drained and have a fine-silty control section. Kamie soils are on hilltops and hillsides. They have a fine-loamy control section.

Typical pedon of McKamie silt loam, 2 to 5 percent slopes, in the NW1/4NW1/4SE1/4 sec. 16, T. 18 S., R. 27 W.; in Miller County:

A11—0 to 2 inches; dark brown (10YR 3/3) silt loam; moderate medium granular structure; very friable; many medium and coarse roots; strongly acid; abrupt smooth boundary.

A2—2 to 8 inches; yellowish brown (10YR 5/4) silt loam; moderate medium granular structure; very friable; many medium and coarse roots; strongly acid; abrupt smooth boundary.

B21t—8 to 18 inches; red (2.5YR 4/8) clay; strong medium subangular blocky structure; very firm; common fine and very fine pores; common medium and coarse roots; pressure faces; very strongly acid; clear smooth boundary.

B22t—18 to 25 inches; dark red (2.5YR 3/6) clay; strong medium subangular blocky structure; very firm; common fine and very fine pores; common medium and coarse roots; few smooth and grooved slickensides; strongly acid; gradual smooth boundary.

B23t—25 to 38 inches; dark red (2.5YR 3/6) clay; strong medium subangular blocky structure; very firm; common fine and very fine pores; common medium and coarse roots; common slickensides; strongly acid; gradual smooth boundary.

B3—38 to 43 inches; yellowish red (5YR 4/6) silty clay loam; moderate medium subangular blocky structure; firm; few medium and fine roots; medium acid; clear smooth boundary.

IIC1—43 to 53 inches; yellowish red (5YR 4/8) silt loam; massive; friable; few medium and fine roots; moderately alkaline; clear smooth boundary.

IIC2—53 to 60 inches; yellowish red (5YR 4/6) very fine sandy loam; massive; very friable; few medium and fine roots; moderately alkaline; clear smooth boundary.

The solum thickness ranges from 36 to 60 inches. Reaction is medium acid or strongly acid in the A horizon. It ranges from medium acid to very strongly acid in the upper part of the B horizon and from medium acid to mildly alkaline in the lower part. Reaction in the C horizon ranges from neutral to moderately alkaline. Some pedons are calcareous in the C horizon.

The A horizon ranges from 4 to 9 inches in thickness. The A1 horizon has hue of 10YR, value of 3, and chroma of 3, or value of 4 and chroma of 3 or 4. The A2 horizon has hue of 10YR, value of 5, and chroma of 4 or 6; or it has hue of 7.5YR, value of 5, and chroma of 6.

The B2t horizon has hue of 2.5YR, value of 3, and chroma of 6, or value of 4 and chroma of 6 or 8, or value of 5 and chroma of 8; or it has hue of 5YR, value of 4, and chroma of 6 or 8. It has none to common mottles in shades of brown. The B2t horizon is typically clay in the upper 20 inches and clay, silty clay, or silty clay loam below.

The IIC horizon has colors similar to those of the B horizon. It is silt loam, silty clay loam, or very fine sandy loam.

Midland Series

The Midland series consists of deep, poorly drained, level soils on low terraces in the Coastal Plains. Permeability is very slow. These soils formed in clayey alluvial sediment. The native vegetation was mixed hardwoods and a few pine. Slopes are 0 to 1 percent.

Midland soils are geographically associated with Foley soils. Foley soils are at a slightly higher elevation than Midland soils. They have a natric horizon and a fine-silty control section.

Typical pedon of Midland silty clay loam, 0 to 1 percent slopes, in a moist wooded area in the SE1/4NW1/4NE1/4 sec. 24, T. 13 S., R. 31 W.; in Little River County:

A1—0 to 2 inches; dark grayish brown (10YR 4/2) silty clay loam; common fine distinct yellowish brown (10YR 5/8) mottles; moderate medium granular structure; friable; many medium and fine roots; medium acid; clear smooth boundary.

A2—2 to 7 inches; gray (10YR 6/1) silty clay loam, common medium distinct dark yellowish brown (10YR 4/4) and common fine distinct strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; firm; many medium and fine roots; strongly acid; clear smooth boundary.

B21tg—7 to 17 inches; dark gray (10YR 4/1) silty clay; common medium distinct dark brown (10YR 4/3) and few fine distinct yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; very firm; common thin patchy clay films; common medium and fine roots; strongly acid; gradual smooth boundary.

B22tg—17 to 31 inches; dark gray (10YR 4/1) silty clay; common medium distinct dark brown (10YR 4/3) mottles; moderate medium subangular blocky structure; very firm; common patchy clay films; common fine roots; common pressure faces; strongly acid; gradual smooth boundary.

B23tg—31 to 41 inches; dark gray (10YR 4/1) silty clay; common medium distinct dark yellowish brown (10YR 4/4) mottles; strong coarse subangular blocky structure; very firm; common patchy clay films; few fine roots; medium acid; gradual smooth boundary.

B24tg—41 to 53 inches; dark gray (10YR 4/1) silty clay; common medium distinct dark brown (10YR 4/3) mottles; moderate medium and coarse subangular blocky structure; very firm; common patchy clay films; few fine roots; few small calcium carbonate concretions; neutral; gradual smooth boundary.

B3g—53 to 70 inches; light brownish gray (2.5Y 6/2) silty clay; common medium distinct light yellowish brown (2.5Y 6/4) mottles; weak medium subangular blocky structure; very firm; common thin patchy clay films; few fine roots; 1 percent by volume calcium carbonate concretions 1/4 to 1/2 inch in diameter; moderately alkaline; gradual smooth boundary.

Cg—70 to 82 inches; light brownish gray (2.5Y 6/2) silty clay; moderate medium distinct yellowish brown (10YR 5/8) mottles; massive; very firm; 2 percent by volume calcium carbonate concretions 1/4 to 1/2 inch in diameter; moderately alkaline; gradual smooth boundary.

The solum thickness ranges from 50 to 80 inches. Reaction ranges from strongly acid to slightly acid in the surface layer and upper part of the subsoil and from neutral through moderately alkaline in the lower part of the subsoil and underlying material.

The A horizon ranges from 3 to 12 inches in thickness. The A1 or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 1 or 2. The A2 horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. Few to common mottles are in shades of brown.

The B2tg and B3g horizons have hue of 10YR or 2.5Y, value of 4, 5, or 6, and chroma of 1, or value of 6 and chroma of 2. Common fine to medium mottles are in shades of brown. These horizons are silty clay loam, silty clay, or clay. Clay content of the control section is 35 to 60 percent. In places calcium carbonate concretions are below a depth of 36 inches.

Colors and textures in the Cg horizon are similar to those of the B3g horizon.

Morse Series

The Morse series consists of deep, well drained soils that developed from calcareous, clayey alluvium. Permeability is very slow. These soils are on gently sloping terraces in the Coastal Plains. The native vegetation is mixed pine and hardwoods. Slopes range from 3 to 8 percent.

Morse soils are geographically associated with Forbing, Gore, and McKamie soils. Forbing, Gore, and McKamie soils are in positions on the landscape similar to those of Morse soils. They have argillic horizons, and, in addition, Forbing and Gore soils are moderately well drained.

Typical pedon of Morse clay, 3 to 8 percent slopes, eroded, in a moist wooded area in the SE1/4NE1/4SW1/4 sec. 27, T. 18 S., R. 24 W.; in Lafayette County:

A1—0 to 6 inches; dark reddish brown (5YR 3/4) clay; moderate medium subangular blocky structure; very firm; mildly alkaline; clear smooth boundary.

AC—6 to 14 inches; reddish brown (5YR 4/4) clay; moderate medium subangular blocky structure; very firm; mildly alkaline; clear wavy boundary.

C1—14 to 22 inches; yellowish red (5YR 4/6) clay; moderate medium subangular blocky structure; very firm; intersecting slickensides; common fine calcium carbonate concretions; calcareous; mildly alkaline; gradual wavy boundary.

C2—22 to 40 inches; yellowish red (5YR 4/6) clay; moderate coarse subangular blocky structure; very firm; intersecting slickensides; common calcium carbonate concretions 1/2 to 1 centimeter in diameter; calcareous; mildly alkaline; gradual wavy boundary.

IIC—40 to 66 inches; yellowish red (5YR 4/6) silty clay loam; massive; very firm; many calcium carbonate concretions 1/2 to 1 centimeter in diameter; calcareous; mildly alkaline; gradual wavy boundary.

IIC2—66 to 72 inches; stratified lenses of yellowish red (5YR 5/6) silt loam and yellowish red (5YR 4/6) silty clay; massive; very firm; calcareous; mildly alkaline.

Reaction is mildly alkaline or moderately alkaline throughout.

The A horizon ranges from 5 to 6 inches in thickness. It has hue of 5YR, value of 3, and chroma of 3 or 4.

The AC horizon has hue of 5YR, value of 4, and chroma of 3, 4, and 6.

The C and IIC horizons have hue of 2.5YR, value of 4, and chroma of 6; or they have hue of 5YR, value of 4 or 5, and chroma of 6 or 8. The IIC horizon is silty clay loam, silty clay, silt loam, or fine sandy loam.

Muskogee Series

The Muskogee series consists of deep, moderately well drained, nearly level to gently sloping soils on uplands and terraces. Permeability is slow. These soils formed in a thin, silty layer and in the underlying clayey sediment. The native vegetation is mixed hardwoods. Slopes range from 1 to 8 percent.

Muskogee soils are geographically associated with Acadia, Gore, McKamie, Woden, and Wrightsville soils. Acadia soils are on lower terraces at a lower elevation. They are somewhat poorly drained and have a fine control section. Gore, McKamie, and Woden soils are in positions on the landscape similar to those of Muskogee soils. Gore soils have a fine control section, McKamie soils are well drained and have a fine control section, and Woden soils are well drained and have a coarse-loamy control section. Wrightsville soils are on broad flats of terraces. They are poorly drained and have a fine control section.

Typical pedon of Muskogee silt loam, 1 to 3 percent slopes, in the NE1/4SW1/4SE1/4 sec. 5, T. 17 S., R. 24 W.; in Lafayette County:

A1—0 to 3 inches; dark brown (10YR 4/3) silt loam; weak medium granular structure; very friable; slightly acid; clear smooth boundary.

A2—3 to 7 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; few fine black specks; medium acid; clear smooth boundary.

B1—7 to 15 inches; light yellowish brown (10YR 6/4) silt loam; weak medium subangular blocky structure; friable; strongly acid; gradual smooth boundary.

B21t—15 to 32 inches; yellowish brown (10YR 5/4) silt loam; few fine prominent red (2.5YR 4/8) and common medium distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; friable; strongly acid; clear smooth boundary.

B22t—32 to 66 inches; light brownish gray (10YR 6/2) silty clay; common medium prominent red (2.5YR 4/8) and strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; firm; gray (10YR 6/1) silt coats on ped faces in upper 6 inches of the horizon; strongly acid; gradual smooth boundary.

B23t—66 to 72 inches; red (2.5YR 4/6) clay; moderate medium subangular blocky structure; very firm; medium acid.

The solum thickness is 60 inches or more. Reaction ranges from very strongly acid to medium acid in the A horizon and upper part of the B horizon except in areas where the soils have been limed. Reaction ranges from strongly acid to mildly alkaline in the lower part of the B horizon.

The A horizon ranges from about 4 to 12 inches in thickness. The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. The A2 horizon, where present, has hue of 10YR, value of 5 or 6, and chroma of 3 or 4.

The B1 horizon has hue of 10YR, value of 5 or 6, and chroma of 4 or 6; or it has hue of 7.5YR, value of 5, and chroma of 6. The B21t horizon has hue of 10YR, value of 5, and chroma of 4, 6, or 8; or it has hue of 7.5YR, value of 5, and chroma of 6. The B1 and B21t horizons are silt loam or silty clay loam.

The B22t and B23t horizons have hue of 10YR, value of 6 and 7, and chroma of 1 or 2; or they have hue of 10YR or 7.5YR, value of 5, and chroma of 6; or hue of 5YR or 2.5YR, value of 4, and chroma of 6. Few to common mottles are in shades of red, yellow, brown, and gray. In some pedons red or brown colors are dominant. Other pedons are mottled and there is no dominant color. The B22t and B23t horizons are silty clay or clay.

Ochlockonee Series

The Ochlockonee series consists of deep, well drained, level and nearly level soils on flood plains. Permeability is moderately rapid. These soils formed in thick beds of loamy alluvium on natural levees of streams that drain the Ouachita Mountains and Coastal Plains. The native vegetation was mixed hardwoods and a few pine. Slopes are 0 to 3 percent.

Ochlockonee soils are geographically associated with the Ouachita and Sardis soils. Ouachita soils are in positions on the landscape similar to those of Ochlockonee soils. They are fine-silty in the control section. Sardis soils are at a slightly lower elevation. They are somewhat poorly drained and have a fine-silty control section.

Typical pedon of Ochlockonee fine sandy loam, from an area of Ouachita and Ochlockonee soils, occasionally flooded, in a moist pasture in the NE1/4SE1/4NE1/4 sec. 10, T. 10 S., R. 32 W.; in Little River County:

Ap—0 to 4 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium granular structure; very friable; strongly acid; clear smooth boundary.

A12—4 to 12 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium granular structure; friable; strongly acid; clear smooth boundary.

C1—12 to 23 inches; yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure; friable; very strongly acid; abrupt smooth boundary.

C2—23 to 40 inches; yellowish brown (10YR 5/4) sandy loam; massive; friable; common horizontal bedding planes; very strongly acid; clear smooth boundary.

C3—40 to 50 inches; yellowish brown (10YR 5/6) sandy loam; massive; friable; common horizontal bedding planes; very strongly acid; clear smooth boundary.

C4—50 to 72 inches; yellowish brown (10YR 5/6) sandy loam; strata of pale brown (10YR 6/3) very fine sandy loam; massive; very friable; common horizontal bedding planes; very strongly acid.

Reaction is strongly acid or very strongly acid throughout. Most pedons have horizontal bedding planes or strata of contrasting textures or strata caused by irregular distribution of organic matter.

The A horizon ranges from 4 to 12 inches in thickness. It has hue of 10YR, value of 3 or 4, and chroma of 4, or value of 4 and chroma of 3.

The C horizon has hue of 10YR, value of 4, 5, or 6, and chroma of 3, 4, or 6. In some pedons, mottles are brown, yellow, and gray below a depth of 20 inches. The C horizon is sandy loam, fine sandy loam, or very fine sandy loam.

Oklared Series

The Oklared series consists of deep, well drained soils that formed in thick alluvium. Permeability is moderately rapid. These soils are on low parallel ridges and swales along the Red River. The native vegetation was mixed hardwoods. Slopes are 0 to 2 percent.

The Oklared soils are geographically associated with Kiomatia and Severn soils. Kiomatia and Severn soils are on natural levees adjacent to Oklared soils. Kiomatia soils have sandy textures in the 10- to 40-inch control section, and Severn soils have a coarse-silty control section.

Typical pedon of Oklared fine sandy loam, gently undulating, in a moist pasture in the SE1/4SW1/4NW1/4 sec. 27, T. 18 S., R. 26 W.; in Miller County:

A1—0 to 6 inches; brown (7.5YR 5/4) fine sandy loam; weak granular structure; very friable; calcareous; mildly alkaline; clear smooth boundary.

C1—6 to 15 inches; reddish brown (5YR 5/4) fine sandy loam; massive; very friable; bedding planes evident; calcareous; mildly alkaline; clear smooth boundary.

C2—15 to 46 inches; light reddish brown (5YR 6/4) fine sandy loam; massive; very friable; bedding planes evident; calcareous; mildly alkaline; abrupt smooth boundary.

IIC3—46 to 70 inches; pink (7.5YR 7/4) loamy fine sand; massive; very friable; calcareous; mildly alkaline.

Reaction is mildly alkaline or moderately alkaline throughout. These soils are calcareous.

The A horizon ranges from 3 to 15 inches in thickness. It has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 4 or 6.

The C horizon has hue of 5YR, value of 5 or 6, and chroma of 4 or 6; or it has hue of 7.5YR, value of 5 or 6, and chroma of 6; or hue of 7.5YR, value of 7, and

chroma of 4. The C horizon at a depth of 10 to 40 inches is dominantly fine sandy loam, loam, or very fine sandy loam and has thin strata of finer or coarser material. The IIC horizon is within a depth of 40 to 60 inches or more. It is dominantly loamy fine sand, fine sandy loam, or very fine sandy loam, and has strata of coarser or finer material.

Oktibbeha Series

The Oktibbeha series consists of moderately deep to deep, moderately well drained, gently sloping to moderately sloping soils on hilltops and hillsides in intermingled areas in the Blackland Prairies and Coastal Plains. Permeability is very slow. These soils formed in beds of acid clay overlying calcareous chalk and marl. The native vegetation was mixed hardwoods and pine. Slopes range from 3 to 12 percent.

Oktibbeha soils are geographically associated with Demopolis, Kipling, and Sumter soils. Demopolis soils are in positions on the landscape similar to those of Oktibbeha soils. They are shallow to chalk. Kipling soils are at a slightly lower elevation. They are somewhat poorly drained. Sumter soils are on the more strongly dissected landscapes. They have a fine-silty control section, are calcareous throughout, and are shallower to chalk than Oktibbeha soils.

Typical pedon of Oktibbeha silt loam, 3 to 8 percent slopes, in a pine plantation in the NW1/4NW1/4NE1/4 sec. 5, T. 12 S., R. 32 W.; in Little River County:

A1—0 to 5 inches; grayish brown (10YR 4/2) silt loam; weak medium granular structure; friable; many fine roots; medium acid; clear smooth boundary.

A2—5 to 9 inches; dark brown (10YR 4/3) silt loam; weak medium granular structure; friable; common fine distinct pale brown (10YR 6/3) mottles; friable; many fine roots; medium acid; clear smooth boundary.

B1—9 to 12 inches; strong brown (7.5YR 5/6) silty clay loam; common fine distinct pale brown (10YR 6/3) mottles; weak medium subangular blocky structure; friable; patchy clay films on faces of peds; sticky, plastic; common fine roots; very strongly acid; gradual wavy boundary.

B21t—12 to 24 inches; yellowish red (5YR 4/6) clay; common medium prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; very firm; continuous clay films or pressure faces on faces of peds; very sticky, very plastic; few fine roots; very strongly acid; gradual wavy boundary.

B22t—24 to 32 inches; mottled yellowish brown (10YR 5/6), light brownish gray (2.5Y 6/2), and yellowish red (5YR 4/6) clay; moderate medium subangular blocky structure; very firm; continuous clay films or pressure faces on faces of peds; very sticky, very plastic; very strongly acid; clear wavy boundary.

B23t—32 to 37 inches; mottled light brownish gray (2.5Y 6/2), strong brown (7.5YR 5/8), and yellowish brown (10YR 5/6) clay; moderate medium subangular blocky structure; firm; very sticky, very plastic; patchy clay films on faces of peds; medium acid; clear wavy boundary.

C1—37 to 48 inches; mottled light gray (2.5Y 7/2) and yellowish brown (10YR 5/6) chalk and marly clay; massive; firm; sticky and plastic; moderately alkaline; calcareous; abrupt wavy boundary.

Cr—48 to 80 inches; soft rippable chalk and marl; massive.

The solum thickness ranges from 20 to 50 inches. The A and B horizons range from very strongly acid to medium acid, and the C horizon ranges from neutral to moderately alkaline. These soils are usually calcareous. Depth to soft chalk and marl ranges from 30 to 50 inches.

The A horizon ranges from 2 to 10 inches in thickness. It has hue of 10YR, value of 4, and chroma of 2 or 3.

The B21t horizon has hue of 7.5YR or 5YR, value of 4 or 5, and chroma of 6. In some pedons brownish mottles are few to common.

Colors in the B22t, B23t, and B24t horizons are similar to those of the B21t horizon, or these horizons may have hue of 10YR, value of 5, and chroma of 6. In some pedons mottles are in shades of brown, red, and gray. In other pedons the matrix is gray.

The C horizon has hue of 5Y, 2.5Y, or 10YR, value of 5, 6, or 7, and chroma of 2. In some pedons mottles are in shades of olive, brown, yellow, and gray. The C horizon is marly clay or chalk.

Ouachita Series

The Ouachita series consists of deep, well drained, undulating soils on flood plains. Permeability is moderately slow. These soils formed in thick beds of loamy alluvium on natural levees of streams that drain the Ouachita Mountains and Coastal Plains. The native vegetation was mixed hardwoods and a few pine. Slopes are 0 to 3 percent.

Ouachita soils are geographically associated with Guyton, Ochlockonee, and Sardis soils. Guyton soils are in depressional areas. They have argillic horizons and are poorly drained. Ochlockonee soils are in positions on the landscape similar to those of Ouachita soils. They have a coarse-loamy control section. Sardis soils are at a slightly lower elevation. They are somewhat poorly drained.

Typical pedon of Ouachita silt loam, occasionally flooded, in a moist pasture area in the NE1/4SE1/4SW1/4 sec. 33, T. 10 S., R. 31 W.; in Little River County:

A1—0 to 5 inches; dark brown (10YR 4/3) silt loam; weak medium granular structure; friable; slightly acid; clear smooth boundary.

A12—5 to 18 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; medium acid; clear smooth boundary.

B1—18 to 28 inches; dark yellowish brown (10YR 4/4) silt loam; few medium faint dark brown (10YR 4/3) mottles; moderate medium subangular blocky structure; friable; strongly acid; gradual wavy boundary.

B22—28 to 39 inches; yellowish brown (10YR 5/4) silt loam; few fine distinct dark brown (10YR 4/3) and few fine faint light yellowish brown (10YR 6/4) mottles; moderate medium subangular blocky structure; friable; very strongly acid; gradual wavy boundary.

B3—39 to 62 inches; yellowish brown (10YR 5/4) fine sandy loam; common medium distinct light brownish gray (10YR 6/2) and dark brown (10YR 4/3) mottles; weak medium subangular blocky structure; friable; very strongly acid; clear smooth boundary.

C—62 to 72 inches; dark yellowish brown (10YR 4/4) fine sandy loam; few medium distinct light brownish gray (10YR 6/2) and yellowish brown (10YR 5/8) mottles; massive; friable; very strongly acid.

The solum thickness ranges from 40 to more than 72 inches. Reaction is strongly acid or very strongly acid throughout except in areas where the soils have been limed.

The A horizon ranges from 8 to 18 inches in thickness. It has hue of 10YR, value of 4, and chroma of 2 or 3, or value of 4 and chroma of 4, or value of 5 and chroma of 3.

The B horizon has hue of 10YR, value of 4 or 5, and chroma of 3 or 4, or value of 5 and chroma of 6. None to common mottles in shades of brown and gray are below a depth of 24 inches. The B2 horizon is silt loam, loam, or silty clay loam. The B3 horizon is silt loam, loam, or fine sandy loam.

Colors in the C horizon are similar to those of the B horizon. The C horizon is silt loam, fine sandy loam, or loamy fine sand.

Perry Series

The Perry series consists of deep, poorly drained soils that formed in clayey alluvium. Permeability is very slow. These soils are on broad flats that were backswamps of the Red River. The native vegetation was mixed hardwoods. Slope is dominantly less than 1 percent.

Perry soils are geographically associated with Billyhaw, Caspiana, Latanier, Rilla, and Yorktown soils. Billyhaw and Latanier soils are in positions on the landscape similar to those of Perry soils. Billyhaw soils are somewhat poorly drained and have intersecting slickensides, and Latanier soils are somewhat poorly drained and have a clayey-over-loamy control section. Caspiana and Rilla soils are on natural levees at higher elevations. They are well drained and have fine-silty control sections. Yorktown soils are on ponded backswamps. They are very poorly drained and do not crack to a depth of 20 inches in most years.

Typical pedon of Perry clay, 0 to 1 percent slopes, in a moist soybean field in the SW1/4NW1/4NW1/4 sec. 10, T. 16 S., R. 26 W.; in Miller County:

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) clay; common medium prominent mottles of yellowish red (5YR 4/8); moderate medium subangular blocky structure; very firm; sticky and plastic when wet; strongly acid; clear smooth boundary.

B2g—5 to 21 inches; dark gray (10YR 4/1) clay; common medium distinct mottles of dark brown (7.5YR 4/4); moderate medium subangular blocky structure; very firm; sticky and plastic when wet; few slickensides; strongly acid; clear smooth boundary.

IIB3—21 to 32 inches; reddish brown (5YR 4/3) clay; common medium prominent mottles of dark gray (10YR 4/1); moderate medium subangular blocky structure; very firm; sticky and plastic when wet; common slickensides; slightly acid; gradual smooth boundary.

IIC1—32 to 64 inches; reddish brown (5YR 4/3) clay; massive; very firm; sticky and plastic when wet; few calcium carbonate concretions; mildly alkaline; gradual smooth boundary.

IIC2—64 to 72 inches; dark brown (7.5YR 4/4) clay; common fine distinct mottles of gray (10YR 5/1); massive; very firm; sticky and plastic when wet; common calcium carbonate concretions; mildly alkaline.

The thickness of the solum ranges from 30 to 60 inches. Depth to the IIB horizon ranges from 19 to 36 inches. Reaction is strongly acid or medium acid in the A horizon and upper part of the B horizon and ranges from slightly acid to mildly alkaline in the lower part. It ranges from neutral to moderately alkaline in the C horizon.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. Yellowish red or dark brown mottles are in some pedons.

The B2g horizon has hue of 10YR, value of 4 or 5, and chroma of 1. Yellowish red or dark brown mottles may occur in places.

The IIB horizon has hue of 5YR, value of 3 or 4, and chroma of 2, 3 or 4. Few to many mottles are in shades of gray and brown.

The IIC horizon has hue of 5 YR, 7.5YR or 10YR, value of 4 or 5, and chroma of 2, 3, or 4.

Rilla Series

The Rilla series consists of deep, well drained soils on natural levees bordering abandoned channels of the Red River. Permeability is moderate. These soils formed in loamy alluvium. The native vegetation was mixed hardwoods. Slopes are 0 to 3 percent.

Rilla soils are geographically associated with Billyhaw, Caspiana, Latanier, Perry, and Yorktown soils. Billyhaw and Perry soils are on broad flats at lower elevations. Billyhaw soils are somewhat poorly drained, and Perry soils are poorly drained. Both soils have very-fine control sections. Caspiana soils are in positions on the landscape similar to those of Rilla soils. They have a mollic epipedon. Latanier soils are on broad flats. They are somewhat poorly drained and have a clayey-over-loamy control section. Yorktown soils are on ponded backswamps. They are very poorly drained and have a very-fine control section.

Typical pedon of Rilla silt loam, 0 to 1 percent slopes, in a moist cultivated field in the NE1/4SE1/4SW1/4 sec. 31, T. 18 S., R. 25 W.; in Lafayette County:

Ap—0 to 7 inches; dark brown (10YR 4/3) silt loam; moderate medium granular structure; very friable; medium acid; abrupt smooth boundary.

B1—7 to 14 inches; brown (7.5YR 4/4) silt loam; weak medium subangular blocky structure; friable; strongly acid; clear smooth boundary.

B21t—14 to 24 inches; reddish brown (5YR 4/4) silt loam; weak medium subangular blocky structure; friable; silt coats on vertical faces of peds; thin patchy clay films; very strongly acid; gradual smooth boundary.

B22t—24 to 47 inches; yellowish red (5YR 4/6) silt loam; light yellowish brown (10YR 6/4) silt coats on vertical faces of peds; moderate medium subangular blocky structure; thin discontinuous clay films; friable; very strongly acid; gradual smooth boundary.

B3—47 to 59 inches; yellowish red (5YR 5/6) silt loam; weak medium subangular blocky structure; very friable; very strongly acid; clear smooth boundary.

C—59 to 80 inches; yellowish red (5YR 5/6) silt loam; few thin strata of yellowish red (5YR 4/6) silty clay loam 1/2 centimeter to 3 centimeters in thickness; massive; bedding planes evident; friable; mildly alkaline; calcareous.

The solum thickness ranges from 40 to 60 inches. Reaction ranges from medium acid to very strongly acid in the A horizon and is strongly acid or very strongly acid in the B horizon. The C horizon ranges from strongly acid to moderately alkaline.

The A horizon ranges from 5 to 16 inches in thickness. It has hue of 10YR, value of 4 or 5, and chroma of 2 or 3.

The B horizon has hue of 5YR, value of 4 or 5, and chroma of 4 or 6; or it has hue of 7.5YR, value of 4, and chroma of 4. It is silt loam, silty clay loam, or clay loam.

The C horizon has hue of 5YR, value of 4 or 5, and chroma of 4 or 6. It is silt loam, silty clay loam, or loam.

Ruston Series

The Ruston series consists of deep, well drained, nearly level to gently sloping soils on stream terraces and hilltops. Permeability is moderate. These soils formed in thick beds of loamy marine or alluvial sediment in the Coastal Plains. The native vegetation was mixed pine and hardwoods. Slopes range from 2 to 5 percent.

Ruston soils are geographically associated with Bowie, Eylau, Harleston, Sacul, and Smithdale soils. Bowie, Eylau, and Sacul soils are in positions on the landscape similar to those of Ruston soils. Bowie soils are moderately well drained and have more than 5 percent plinthite, Eylau soils are moderately well drained, and Sacul soils are moderately well drained and have a clayey control section. Harleston soils are at a slightly lower elevation. They are moderately well drained and have a coarse-loamy control section. Smithdale soils are at steeper elevations. They do not have a bisequal profile.

Typical pedon of Ruston fine sandy loam, 2 to 5 percent slopes, in the NW1/4NW1/4SE1/4 sec. 22, T. 15 S., R. 24 W.; in Lafayette County:

A1—0 to 6 inches; dark brown (7.5YR 4/2) fine sandy loam; weak medium granular structure; very friable; very strongly acid; clear smooth boundary.

A2—6 to 13 inches; light yellowish brown (10YR 6/4) fine sandy loam; weak medium granular structure; very friable; very strongly acid; abrupt smooth boundary.

B21t—13 to 22 inches; yellowish red (5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; clay films on surfaces of peds; very strongly acid; clear smooth boundary.

B22t—22 to 37 inches; red (2.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; clay films on surfaces of peds; very strongly acid; clear smooth boundary.

B'&A'2—37 to 50 inches; yellowish red (5YR 5/6) sandy loam that has pockets of pale brown (10YR 6/3) sandy loam A'2 material; weak medium subangular blocky structure; few thin patchy clay films; very strongly acid; clear smooth boundary.

B'21t—50 to 66 inches; yellowish red (5YR 5/6) sandy clay loam; common medium prominent pale brown (10YR 6/3) mottles; moderate medium subangular blocky structure; friable; clay films on ped surfaces; very strongly acid; clear smooth boundary.

B'22t—66 to 72 inches; yellowish red (5YR 5/6) fine sandy loam; common medium distinct pale brown

(10YR 6/3) mottles; weak medium subangular blocky structure; friable; thin patchy clay films; very strongly acid.

The solum thickness exceeds 60 inches. Reaction is very strongly acid or strongly acid throughout.

The A horizon ranges from 6 to 20 inches in thickness. The A1 or Ap horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 2, 3, or 4. The A2 horizon has hue of 10YR, value of 6, chroma of 3 or 4, or value of 5 and chroma of 4.

The B2t and B'2t horizons have hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 6 to 8. They are sandy clay loam, clay loam, loam, sandy loam, or fine sandy loam. The A'2 horizon has hue of 10YR, value of 5 or 6, and chroma of 3 or 4. Mottles in the B'2t horizons are in shades of gray or brown.

Sacul Series

The Sacul series consists of deep, moderately well drained, nearly level to steep soils that formed in acid, unconsolidated, stratified, loamy and clayey deposits. Permeability is slow. These soils are on hillsides and hilltops in the Coastal Plains. The native vegetation was mixed hardwoods and pine. Slopes range from 1 to 40 percent.

Sacul soils are geographically associated with Amy, Bowie, Eylau, Ruston, Sawyer, and Smithdale soils. Amy soils are on flood plains. They are poorly drained and have a fine-silty control section. Bowie, Eylau, Ruston, Sawyer, and Smithdale soils are in positions on the landscape similar to those of Sacul soils. Bowie, Eylau, Ruston, and Smithdale soils have fine-loamy control sections, and Sawyer soils have a fine-silty control section. In addition, Ruston and Smithdale soils are well drained.

Typical pedon of Sacul fine sandy loam, 3 to 8 percent slopes, in an old field planted in pine in the SE1/4SW1/4NW1/4 sec. 26, T. 19 S., R. 28 W.; in Miller County:

A1—0 to 2 inches; dark grayish brown (10YR 4/2) fine sandy loam; moderate medium granular structure; very friable; few large and medium roots; very strongly acid; clear smooth boundary.

A2—2 to 9 inches; yellowish brown (10YR 5/4) fine sandy loam; moderate medium granular structure; very friable; common fine roots; few small black pebbles 2 to 5 millimeters in diameter; very strongly acid; clear smooth boundary.

B21t—9 to 20 inches; red (2.5YR 4/6) silty clay; moderate medium subangular blocky structure; very firm; plastic; discontinous clay films on faces of peds and in pores; common fine roots; very strongly acid; clear smooth boundary.

B22t—20 to 26 inches; red (2.5YR 4/6) clay; common medium prominent strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; very firm; plastic; continous clay films on faces of peds and in pores; few very fine roots; very strongly acid; gradual smooth boundary.

B23t—26 to 42 inches; red (2.5YR 4/6) silty clay; common medium prominent gray (10YR 6/1) and common fine prominent strong brown mottles; moderate medium subangular blocky structure; very firm; discontinous clay films on faces of peds; very strongly acid; gradual smooth boundary.

B3—42 to 57 inches; mottled red (2.5YR 4/6), gray (10YR 6/1), and strong brown (7.5YR 5/6) silty clay loam; weak medium subangular blocky structure; firm; very strongly acid; gradual smooth boundary.

C—57 to 72 inches; stratified red (2.5YR 4/6) fine sandy loam and gray (10YR 6/1) clay loam; structureless; firm; few strong brown (7.5YR 5/6) ironstone fragments; very strongly acid.

The solum thickness ranges from 40 to more than 72 inches. Reaction is strongly acid or very strongly acid throughout.

The A1 horizon has hue of 10YR, value of 4, and chroma of 2, 3, or 4. The Ap horizon has hue of 10YR or 7.5YR, value of 5, and chroma of 3, 4, or 6. The A2 horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 or 4.

The B21t and B22t horizons have hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8. Matrix colors in the B23t horizon are similar to those of the B21t and B22t horizons, and mottles are in shades of gray. In some pedons the lower part of the B2t horizon is mottled in shades of red, brown, and gray, or the red or gray colors are dominant. The B2t horizons are silty clay or clay.

The color range in the B3 horizon is similar to that of the B2t horizon. The B3t horizon is silty clay loam, clay loam, sandy clay loam, silt loam, or very fine sandy loam.

The C horizon is mottled in shades of red, gray, and brown. It is stratified silt loam, loam, very fine sandy loam, fine sandy loam, clay loam, or silty clay loam.

Saffell Series

The Saffell series consists of deep, well drained, nearly level to moderately sloping soils on narrow hilltops and hillsides in the Coastal Plains. Permeability is moderate. These soils formed in thick beds of gravelly marine sediment. The native vegetation was mixed pine and hardwoods. Slopes range from 1 to 12 percent.

Saffell soils are geographically associated with Bowie, Harleston, Ruston, Sacul, and Smithdale soils. All of the associated soils are in positions on the landscape similar to those of Saffell soils. Bowie soils are moderately well drained. Harleston soils are moderately well drained and have a coarse-loamy control section. Ruston and Smithdale soils have fine-loamy control sections. Sacul

soils are moderately well drained and have a clayey control section.

Typical pedon of Saffell gravelly fine sandy loam, 1 to 3 percent slopes, in a gravel pit area in the SE1/4NW1/4SE1/4 sec. 9, T. 11 S., R. 32 W.; in Little River County:

A1—0 to 6 inches; dark yellowish brown (10YR 4/4) gravelly fine sandy loam; weak medium granular structure; friable; 20 percent by volume rounded and subrounded gravel; strongly acid; clear smooth boundary.

B1—6 to 18 inches; yellowish brown (10YR 5/4) very gravelly fine sandy loam; weak medium granular structure; friable; 40 percent by volume rounded and subrounded gravel; strongly acid; gradual smooth boundary.

B21t—18 to 30 inches; strong brown (7.5YR 5/6) very gravelly fine sandy loam; weak medium subangular blocky structure; friable; few thin patchy clay films and sand grains coated with clay; 50 percent by volume rounded and subrounded gravel; very strongly acid; gradual smooth boundary.

B22t—30 to 40 inches; strong brown (7.5YR 5/6) very gravelly fine sandy loam; weak medium subangular blocky structure; friable; sand grains coated with clay; 55 percent by volume rounded and subrounded gravel; very strongly acid; gradual smooth boundary.

B3—40 to 60 inches; strong brown (7.5YR 5/6) very gravelly fine sandy loam; weak medium subangular blocky structure; friable; 60 percent by volume rounded and subrounded gravel; very strongly acid.

C—60 to 72 inches; yellowish red (5YR 5/8) very gravelly sandy clay loam; common medium prominent pale brown (10YR 6/3) and few medium distinct red (2.5YR 4/8) mottles; massive; friable; 70 percent by volume rounded and subrounded gravel; very strongly acid.

The solum thickness ranges from 35 to 60 inches. Reaction is strongly acid or very strongly acid throughout.

The A horizon ranges from 3 to 10 inches in thickness. It has hue of 10YR, value of 4, and chroma of 3 or 4; or it has hue of 7.5YR, value of 4 or 5, and chroma of 4. The gravel content of the A horizon ranges from 20 to 35 percent.

The B1 horizon, where present, has hue of 10YR, value of 5, and chroma of 4; or it has hue of 7.5YR, value of 5, and chroma of 4. It is gravelly or very gravelly fine sandy loam or gravelly or very gravelly sandy loam. The B2t and B3 horizons have hue of 7.5YR, value of 5, and chroma of 6 or 8; or they have hue of 5YR, value of 4 or 5, and chroma of 6 or 8; or hue of 2.5YR, value of 4, and chroma of 6. They are very gravelly sandy clay loam, very gravelly loam, or very gravelly fine sandy loam. Gravel content of the B horizon ranges from 35 to 70 percent by volume.

Colors in the C horizon are similar to those of the B3 horizon. The C horizon is gravelly or very gravelly sandy loam, loamy sand, or sandy clay loam. Gravel content of the C horizon ranges from 20 to 80 percent by volume.

These Saffell soils were correlated as taxadjuncts to the Saffell series in this survey because these soils do not decrease in clay content as depth in the lower part of the solum or in the C horizon increases. Use and management, however, are similar so that a new series is not needed.

Sardis Series

The Sardis series consists of deep, somewhat poorly drained, nearly level soils that formed in loamy alluvial sediment. Permeability is moderate. These soils are on flood plains in the Coastal Plains. The native vegetation was predominantly mixed hardwoods and some pine. Slopes are 0 to 3 percent.

Sardis soils are geographically associated with Guyton, Ochlockonee, and Ouachita soils. Guyton soils are in depressional areas. They are poorly drained. Ochlockonee and Ouachita soils are at slightly higher elevations than Sardis soils. They are well drained, and, in addition, Ochlockonee soils have a coarse-loamy control section.

Typical pedon of Sardis silt loam, frequently flooded, in a moist wooded area in the NW1/4NE1/4SW1/4 sec. 31, T. 10 S., R. 32 W.; in Little River County:

A1—0 to 7 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; few fine roots; very strongly acid; abrupt smooth boundary.

B21—7 to 21 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; common medium and fine roots; very strongly acid; clear smooth boundary.

B22—21 to 33 inches; dark yellowish brown (10YR 4/4) silt loam; few medium distinct light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; common medium and fine roots; very strongly acid; gradual smooth boundary.

B23—33 to 48 inches; yellowish brown (10YR 5/4) silty clay loam; common medium distinct gray (10YR 6/1) and strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; few medium roots; very strongly acid; gradual smooth boundary.

C—48 to 72 inches; strong brown (7.5YR 5/8) sandy clay loam; common medium distinct gray (10YR 6/1) and few medium distinct yellowish red (5YR 5/8) mottles; massive; friable; very strongly acid.

The solum thickness ranges from 40 to 70 inches. Reaction ranges from medium acid to very strongly acid throughout.

The A horizon ranges from 5 to 8 inches in thickness. The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2, 3, or 4.

The B2 horizon has hue of 10YR or 7.5YR, value of 4, 5, or 6, and chroma of 3, 4, or 6. Few to common gray and brown mottles are at depths of 8 to 24 inches. The B2 horizon is silt loam, silty clay loam, or clay loam.

Colors in the C horizon range from a gray matrix that has mottles in shades of brown to yellowish brown to a strong brown matrix that has mottles in shades of gray and red. The C horizon is silt loam, sandy loam, or sandy clay loam.

Sawyer Series

The Sawyer series consists of deep, moderately well drained, nearly level to gently sloping soils on hilltops and hillsides in the Coastal Plains. Permeability is slow. These soils formed in stratified, loamy and clayey sediment. The native vegetation was mixed hardwoods and pine. Slopes range from 1 to 8 percent.

Sawyer soils are geographically associated with Eylau, Ruston, Sacul, and Smithdale soils. All of the associated soils are in positions on the landscape similar to those of Sawyer soils. Eylau, Ruston, and Smithdale soils have fine-loamy control sections, and Sacul soils have a clayey control section. In addition, Ruston and Smithdale soils are well drained.

Typical pedon of Sawyer silt loam, 1 to 3 percent slopes, in a moist pasture area in the SE1/4NE1/4SW1/4 sec. 7, T. 15 S., R. 27 W.; in Miller County:

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam; common fine distinct dark yellowish brown (10YR 4/4) mottles; weak fine granular structure; friable; many fine roots; few fine dark brown concretions; very strongly acid; abrupt smooth boundary.

B1—5 to 9 inches; yellowish brown (10YR 5/4) silt loam; common fine distinct dark grayish brown (10YR 4/2) and yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable; many fine roots; few fine dark brown concretions; very strongly acid; clear smooth boundary.

B21t—9 to 17 inches; yellowish brown (10YR 5/8) silty clay loam; common fine distinct pale brown (10YR 6/3) mottles; weak medium subangular blocky structure; friable; common thin patchy clay films on faces of peds; common fine roots; few fine dark concretions; very strongly acid; clear smooth boundary.

B22t—17 to 28 inches; yellowish brown (10YR 5/6) silty clay loam; common medium distinct pale brown (10YR 6/3), yellowish red (5YR 4/6), and common fine distinct gray mottles; moderate medium subangular blocky structure; firm; common thin patchy clay films on faces of peds; common fine roots; few fine dark concretions; gray silt coats on ped faces in lower part of horizon; very strongly acid; clear wavy boundary.

B23t—28 to 39 inches; mottled gray (10YR 6/1) and red (2.5YR 4/6) clay; moderate medium subangular blocky structure; very firm; thick patchy clay films on faces of peds; gray silt coats on ped faces in upper part of horizon; few fine roots; very strongly acid; gradual smooth boundary.

B24t—39 to 45 inches; gray (10YR 6/1) clay; common medium prominent red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; very firm; thick patchy clay films on faces of peds; very strongly acid; gradual smooth boundary.

B25t—45 to 50 inches; yellowish red (5YR 4/8) clay; common medium prominent gray (10YR 6/1) mottles; weak coarse subangular blocky structure; very firm; thick patchy clay films on faces of peds; very strongly acid; gradual smooth boundary.

B26t—50 to 61 inches; gray (10YR 6/1) clay; common medium distinct yellowish brown (10YR 5/8) and common medium prominent yellowish red (5YR 4/6) mottles; weak coarse subangular blocky structure; very firm; thick patchy clay films on faces of peds; very strongly acid; gradual smooth boundary.

B27t—61 to 80 inches; yellowish red (5YR 4/6) clay; common medium prominent gray (10YR 6/1) mottles; weak coarse subangular blocky structure; very firm; common thin patchy clay films on faces of peds; very strongly acid.

The solum thickness ranges from 60 to 80 inches or more. Reaction is strongly acid or very strongly acid throughout.

The A horizon ranges from 4 to 6 inches in thickness. The A1 or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. Where present, the A2 horizon has hue of 10YR, value of 5, and chroma of 3.

The B1 horizon has hue of 10YR, value of 5, and chroma of 4 or 6. The B21t and B22t horizons have hue of 10YR or 7.5YR, value of 5, and chroma of 6 or 8. Few to common mottles are in shades of gray and red. The B horizons are silt loam or silty clay loam. The lower part of the B2t horizon is mottled in shades of gray, brown, and red, or the gray or red color is dominant. It is silty clay or clay. The reddish mottles have hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8. The grayish mottles have hue of 10YR, value of 5 or 6, and chroma of 1 or 2.

Severn Series

The Severn series consists of deep, well drained, level to gently undulating soils that formed in silty alluvium. Permeability is moderately rapid. These soils are on flood plains along the Red River. The native vegetation was mixed hardwoods. Slopes are 0 to 3 percent.

Severn soils are geographically associated with Kiomatia and Oklared soils. Kiomatia soils are on natural levees adjacent to Severn soils. They have a sandy control section. Oklared soils are on adjacent low ridges. They have a coarse-loamy control section.

Typical pedon of Severn silt loam, gently undulating, in a moist pasture in the NW1/4SE1/4SW1/4 sec. 8, T. 16 S., R. 25 W.; in Miller County:

Ap—0 to 5 inches; dark brown (7.5YR 4/4) silt loam; moderate medium granular structure; very friable; many small roots; calcareous; mildly alkaline; abrupt smooth boundary.

C1—5 to 9 inches; reddish yellow (7.5YR 6/6) very fine sandy loam; few medium distinct mottles of dark brown (7.5YR 4/4); massive; very friable; many fine roots; calcareous; moderately alkaline; clear smooth boundary.

C21—9 to 19 inches; reddish brown (5YR 4/4) silt loam; massive; very friable; many fine roots; horizontal bedding planes; calcareous; moderately alkaline; clear smooth boundary.

C22—19 to 28 inches; reddish brown (5YR 4/4) very fine sandy loam; massive; very friable; many fine roots; horizontal bedding planes; calcareous; moderately alkaline; clear smooth boundary.

C3—28 to 35 inches; reddish brown (5YR 4/4) silt loam; massive; very friable; horizontal strata of dark reddish brown (5YR 3/3) silt loam; 1 millimeter to 3 milimeters thick; many fine roots; calcareous; moderately alkaline; clear smooth boundary.

C4—35 to 51 inches; reddish brown (5YR 5/4) very fine sandy loam; massive; very friable; horizontal bedding planes; many fine roots; calcareous; moderately alkaline; clear smooth boundary.

C5—51 to 68 inches; reddish brown (5YR 4/4) very fine sandy loam; massive; very friable; horizontal bedding planes; common fine roots; calcareous; moderately alkaline; clear smooth boundary.

C6—68 to 74 inches; reddish brown (5YR 4/4) fine sandy loam; massive; very friable; few fine roots; calcareous; moderately alkaline.

Reaction is mildly alkaline or moderately alkaline throughout.

The Ap horizon ranges from 3 to 8 inches in thickness. It has hue of 5YR or 7.5YR, value of 4, and chroma of 4; or it has hue of 5YR, value of 4 or 3, and chroma of 3.

The C horizon has hue of 5YR, value of 5, and chroma of 4, 6, or 8, or value of 4 and chroma of 4 or 6; or it has hue of 7.5YR, value of 5 or 6, and chroma of 6. The C horizon is fine sandy loam, very fine sandy loam, loamy very fine sand, or silt loam. There are thin strata of coarser or finer material.

Smithdale Series

The Smithdale series consists of deep, well drained, gently sloping soils that formed in thick beds of loamy marine sediment. Permeability is moderate. Smithdale soils are on hillsides in the Coastal Plains. The native vegetation was mixed hardwoods and pine. Slopes range from 5 to 8 percent.

Smithdale soils are geographically associated with Amy, Bowie, Eylau, Ruston, Sacul, and Sawyer soils. Amy soils are on broad flats and flood plains. They are poorly drained. Bowie, Eylau, Ruston, and Sawyer soils are in positions on the landscape similar to those of Smithdale soils. Bowie and Eylau soils are moderately well drained, Ruston soils have a bisequal profile, and Sawyer soils are moderately well drained and have a fine-silty control section. Sacul soils are on nearly level to steep uplands. They are moderately well drained and have a clayey control section.

Typical pedon of Smithdale fine sandy loam, 5 to 8 percent slopes, in a pasture in the NW1/4NW1/4SW1/4 sec. 21, T. 16 S., R 28 W.; in Miller County:

Ap—0 to 5 inches; yellowish brown (10YR 5/4) fine sandy loam; moderate medium granular structure; very friable; many fine roots; medium acid; clear smooth boundary.

A2—5 to 10 inches; brown (10YR 5/3) fine sandy loam; common fine faint mottles of pale brown; moderate medium granular structure; very friable; common fine roots; medium acid; clear wavy boundary.

B21t—10 to 35 inches; yellowish red (5YR 4/6) sandy clay loam; few fine prominent mottles of brownish yellow (10YR 6/6); moderate medium subangular blocky structure; friable; clay films on faces of peds; common fine roots; common fine pores; very strongly acid; clear smooth boundary.

B22t—35 to 54 inches; red (2.5YR 4/6) sandy clay loam; few medium prominent mottles of yellowish brown (10YR 5/4); moderate medium angular and subangular blocky structure; firm; clay films on faces of peds; few fine roots; few fine pores; few strippings of uncoated sand grains on faces of peds; few small siliceous pebbles; very strongly acid; gradual wavy boundary.

B23t—54 to 72 inches; red (2.5YR 4/6) fine sandy loam; common pockets of yellowish brown (10YR 5/6) sandy loam; weak medium prismatic parting to moderate medium angular blocky structure; firm; clay films on faces of peds; common fine pores; few fine roots; few small siliceous pebbles; coatings of clean sand on prisms; very strongly acid.

The solum thickness ranges from 60 to 80 inches or more. Reaction is very strongly acid or strongly acid except in areas where the surface layer has been limed.

The A horizon ranges from 6 to 18 inches in thickness. The Ap horizon has hue of 10YR, value of 4, and chroma of 2 or 3, or value of 5 and chroma of 4. The A2 horizon has hue of 10YR, value of 5, and chroma of 3, 4, or 6.

The upper part of the B2t horizon has hue of 5YR, value of 4, and chroma of 6 or 8; or it has hue of 2.5YR, value of 4, and chroma of 6. It is sandy clay loam or clay loam. Mottles are in shades of brown. Colors in the lower part of the B2t horizon are similar to those in the upper part of the B2t horizon except for the few to many pockets of uncoated sand grains. The B2t horizon is fine sandy loam, sandy clay loam, or loam.

Smithton Series

The Smithton series consists of deep, poorly drained, level to nearly level soils on upland flats and stream terraces in the Coastal Plains. Permeability is moderately slow. These soils formed in loamy marine and alluvial sediment. The native vegetation was mixed hardwoods and pine. Slopes are 0 to 2 percent.

Smithton soils are geographically associated with Amy, Guyton, and Harleston soils. Amy soils are in positions on the landscape similar to those of Smithton soils. They have a fine-silty control section. Guyton soils are on adjacent flood plains. They have a fine-silty control section. Harleston soils are at a higher, more sloping elevation. They are moderately well drained.

Typical pedon of Smithton fine sandy loam, 0 to 2 percent slopes, in a moist forest area in the SW1/4SW1/4SE1/4 sec. 3, T. 11 S., R. 32 W.; in Little River County:

A1—0 to 9 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak medium granular structure; friable; common fine roots; very strongly acid; abrupt smooth boundary.

A2g—9 to 16 inches; light brownish gray (10YR 6/2) fine sandy loam; common medium distinct dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/6) mottles; weak medium granular structure; friable; common fine roots; very strongly acid; abrupt smooth boundary.

B21tg—16 to 25 inches; light brownish gray (10YR 6/2) loam; common medium distinct yellowish brown (10YR 5/6) mottles; weak medium granular structure; very friable; common fine roots; very strongly acid; gradual wavy boundary.

B22tg—25 to 35 inches; light brownish gray (10YR 6/2) loam; common medium distinct yellowish brown (10YR 5/6) and brownish yellow (10YR 6/6) mottles; weak medium subangular blocky structure; very friable; common fine roots; very strongly acid; gradual wavy boundary.

B23tg—35 to 54 inches; gray (10YR 5/1) loam; common medium distinct light brownish gray (10YR 6/2), yellowish brown (10YR 5/6), and brownish yellow (10YR 6/8) mottles; weak medium subangular blocky structure; friable; few fine roots; very strongly acid; gradual wavy boundary.

B24tg—54 to 60 inches; light brownish gray (2.5Y 6/2) loam; common medium distinct light olive brown (2.5Y 5/4, 2.5Y 5/6) and light gray (10YR 7/1) mottles; weak medium subangular blocky structure; friable; very strongly acid; gradual wavy boundary.

B25tg—60 to 72 inches; light gray (5Y 7/1) loam; common medium distinct brown (7.5YR 5/4) and strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; firm; very strongly acid.

The solum thickness ranges from 60 to more than 80 inches. Reaction is strongly acid or very strongly acid throughout. Few to common iron and manganese concretions are in the A and B horizons in some pedons. One to 3 percent by volume of gravel as much as 1 inch in diameter is in the solum in other pedons.

The A horizon ranges from 6 to 18 inches in thickness. The Ap or A1 horizon has hue of 10YR, value of 3, 4, or 5, and chroma of 2. The A2g horizon has hue of 10YR, value of 6, and chroma of 2, or value of 5 and chroma of 1 or 2.

The B2tg horizons have hue of 10YR, value of 5 or 6, and chroma of 1 or 2; or they have hue of 2.5Y, value of 6, and chroma of 2; or hue of 5Y, value of 7, and chroma of 1. Mottles are in shades of brown and yellow. The B2t horizon is loam or fine sandy loam.

Sumter Series

The Sumter series consists of moderately deep, well drained, gently sloping to moderately sloping soils that formed in residuum derived from calcareous chalk. Permeability is slow. These soils are on eroded hilltops and hillsides in the Blackland Prairies. The native vegetation was prairie grasses and occasional eastern redcedar and Bois d'Arc. Slopes range from 5 to 12 percent.

Sumter soils are geographically associated with Catalpa, Demopolis, Houston, Oktibbeha, and Trinity soils. Catalpa soils are on low terraces and flood plains. They are deep and are somewhat poorly drained. Demopolis soils are in positions on the landscape similar to those of Sumter soils. They have a loamy-skeletal control section and are shallower to chalk. Houston soils are at a higher elevation than Sumter soils. They have a mollic epipedon, a very-fine control section, and are deeper to chalk. Oktibbeha soils are also at a higher elevation, have a very-fine control section, and are deeper to chalk. Trinity soils are on flood plains. They are somewhat poorly drained and are deeper to chalk than Sumter soils.

Typical pedon of Sumter silty clay loam, 5 to 12 percent slopes, eroded, in a moist pasture area in the

NE1/4SW1/4NE1/4 sec. 30, T. 12 S., R. 32 W.; in Little River County:

Ap—0 to 7 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium granular structure; very firm; sticky and plastic; common fine roots; moderately alkaline; calcareous; clear smooth boundary.

B2—7 to 15 inches; pale olive (5Y 6/3) silty clay loam; few fine distinct light yellowish brown (2.5Y 6/4) mottles; weak medium subangular blocky structure; very firm; sticky and plastic; common fine roots; moderately alkaline; calcareous; clear smooth boundary.

B3—15 to 24 inches; pale olive (5Y 6/3) silty clay loam; common medium distinct light olive brown (2.5Y 5/6) mottles; common gray (5Y 6/1) chalk fragments; weak medium subangular blocky structure; very firm; sticky and plastic; few fine roots; moderately alkaline; calcareous; clear smooth boundary.

Cr—24 to 39 inches; light gray (5Y 7/1) chalk; common medium distinct olive yellow (2.5Y 6/6) mottles; massive; very firm; moderately alkaline; calcareous.

The solum thickness ranges from 20 to 40 inches. Reaction is moderately alkaline. These soils are calcareous throughout.

The A horizon ranges from 4 to 7 inches in thickness. It has hue of 2.5Y, value of 4 or 5, and chroma of 2; or it has hue of 10YR, value of 3 or 4, and chroma of 2.

The B2 and B3 horizons have hue of 5Y or 2.5Y, value of 5, 6, or 7, and chroma of 3, 4, or 6. They are silty clay loam or silty clay.

The Cr horizon has hue of 2.5Y or 5Y, value of 6 or 7, and chroma of 1 or 2. Mottles are in shades of brown or yellow. The Cr horizon is marly clay or chalk that can be cut with a spade.

Trinity Series

The Trinity series consists of deep, somewhat poorly drained, level soils on flood plains. Permeability is very slow. These soils formed in thick beds of clayey alluvium derived from streams draining the Blackland Prairies. The native vegetation was mixed hardwoods and prairie grasses. Slopes are 0 to 1 percent.

Trinity soils are geographically associated with Catalpa, Houston, and Sumter soils. Catalpa soils are at a slightly higher elevation than Trinity soils. They have less clay in the control section and do not have intersecting slickensides. Sumter soils are on adjacent uplands. They are well drained and are shallower to chalk than Trinity soils.

Typical pedon of Trinity clay, occasionally flooded, in a pasture in the NE1/4NE1/4NE1/4 sec. 5, T. 13 S., R. 32 W.; in Little River County:

Ap—0 to 9 inches; very dark gray (5Y 3/1) clay; moderate fine subangular blocky structure; hard; firm; sticky and plastic; many fine roots; calcareous; mildly alkaline; clear smooth boundary.

A11—9 to 15 inches; very dark gray (10YR 3/1) clay; moderate fine subangular blocky structure; hard; firm; sticky and very plastic; common fine roots; calcareous; mildly alkaline; diffuse wavy boundary.

A12—15 to 20 inches; very dark gray (10YR 3/1) clay; few medium distinct olive gray (5Y 4/2) mottles; moderate fine subangular blocky structure; very hard; firm; sticky and very plastic; common fine roots; calcareous; mildly alkaline; diffuse wavy boundary.

A13—20 to 33 inches; very dark gray (N 3/0) clay; fine medium distinct olive (5Y 5/3) mottles; weak coarse blocky structure; firm; sticky and very plastic; common slickensides which intersect; few fine roots; calcareous; mildly alkaline; diffuse wavy boundary.

C1—33 to 43 inches; very dark gray (5Y 3/1) clay; few medium distinct olive (5Y 4/4) mottles; massive; firm; sticky and very plastic; common slickensides which intersect; calcareous; mildly alkaline; diffuse boundary.

C2—43 to 60 inches; very dark gray (5Y 3/1) clay; few medium distinct olive (5Y 4/3, 5Y 4/4) mottles; massive; very firm; sticky and very plastic; few slickensides; calcareous; mildly alkaline; diffuse wavy boundary.

C3—60 to 72 inches; very dark gray (5Y 3/1) clay; few medium distinct olive (5Y 4/4) and dark gray (N 4/0) mottles; very firm; sticky and very plastic; few slickensides; calcareous; moderately alkaline.

The solum thickness ranges from 30 to 60 inches. Reaction is mildly alkaline or moderately alkaline. These soils are calcareous throughout.

The A horizon has hue of 5Y or 10YR, value of 3, and chroma of 1; or it has hue of 2.5Y, value of 3, and chroma of 0.

The C horizon has hue of 10YR or 5Y, value of 3 or 4, and chroma of 1 or 2; or it has hue of 2.5Y, value of 3, and chroma of 2; or it is neutral and has value of 3 or 4. Mottles are in shades of olive, yellow, light olive brown, yellowish brown, or gray.

These Trinity soils were correlated as taxadjuncts to the Trinity series because the solum thickness is typically less than 60 inches. Behavior and use and management of these soils, however, are similar so that a new series is not needed.

Woden Series

The Woden series consists of deep, well drained, level to gently sloping soils that formed in unconsolidated, loamy sediment. Permeability is moderately rapid. These soils are on stream terraces in the Coastal Plains. The

native vegetation was mixed hardwoods and pine. Slopes range from 0 to 8 percent.

Woden soils are geographically associated with Muskogee and Wrightsville soils. Muskogee soils are in positions on the landscape similar to those of Woden soils. They are moderately well drained and have a fine-silty control section. Wrightsville soils are at a lower elevation. They are poorly drained and have tongues of the A horizon extending into the B horizon.

Typical pedon of Woden fine sandy loam, 1 to 3 percent slopes, in the SE1/4SE1/4SE1/4 sec. 1, T. 18 S., R. 25 W.; in Lafayette County:

Ap—0 to 5 inches; dark brown (7.5YR 4/4) fine sandy loam; moderate medium granular structure; very friable; common fine roots; neutral; clear smooth boundary.

A12—5 to 13 inches; dark brown (7.5YR 4/4) fine sandy loam; few fine distinct yellowish red (5YR 4/8) and dark reddish brown (5YR 3/3) mottles; moderate medium granular structure; very friable; common fine roots; strongly acid; clear wavy boundary.

B21t—13 to 23 inches; yellowish red (5YR 4/6) fine sandy loam; moderate medium subangular blocky structure; very friable; thin patchy clay films on faces of peds; few fine roots; common fine pores; medium acid; gradual smooth boundary.

B22t—23 to 36 inches; yellowish red (5YR 4/6) fine sandy loam; few fine faint dark reddish brown (5YR 3/4) mottles; moderate medium subangular blocky structure; friable; thin patchy clay films on faces of peds; few fine roots; common fine and medium pores; medium acid; gradual smooth boundary.

B23t—36 to 48 inches; yellowish red (5YR 4/8) fine sandy loam; common medium distinct dark reddish brown (5YR 3/3) mottles; moderate medium subangular blocky structure; friable; thin patchy clay films on faces of peds; few fine roots; common fine and medium pores; medium acid; gradual smooth boundary.

B24t—48 to 66 inches; yellowish red (5YR 4/8) fine sandy loam; common medium distinct dark reddish brown (2.5YR 3/4) mottles that are slightly brittle and compacted; moderate medium subangular blocky structure; friable; thin patchy clay films on faces of peds; few fine roots; common fine pores; medium acid; gradual smooth boundary.

B25t—66 to 78 inches; yellowish red (5YR 4/8) fine sandy loam; common medium distinct dark reddish brown (2.5YR 3/4) mottles that are slightly brittle and compacted; moderate medium subangular blocky structure; friable; thin patchy clay films on faces of peds; common fine pores; medium acid.

The solum thickness ranges from 60 to more than 80 inches. Reaction ranges from neutral to strongly acid in the A horizon and is medium acid or strongly acid in the B horizon.

The A horizon ranges from 5 to 13 inches in thickness. The Ap or A1 horizon has hue of 7.5YR, value of 4, and chroma of 2 or 4; or it has hue of 10YR, value of 4, and chroma of 2 or 3. The A2 horizon, where present, has hue of 10YR, value of 6, and chroma of 3 or 4.

The B2t horizon has hue of 5YR, value of 4, and chroma of 4, or value of 4 or 5 and chroma of 6; or it has hue of 2.5YR or 5 YR, value of 4, and chroma of 6 or 8; or hue of 7.5YR, value of 5, and chroma of 6 or 8. It is fine sandy loam or loam.

Wrightsville Series

The Wrightsville series consists of deep, poorly drained soils that formed in silty and clayey alluvium. Permeability is very slow. These soils are on broad upland flats on terraces. The native vegetation is mixed pine and hardwoods. Slopes are dominantly less than 1 percent.

Wrightsville soils are geographically associated with Acadia, Adaton, Louin, McKamie, Muskogee, and Woden soils. Adaton soils are in positions on the landscape similar to those of Wrightsville soils. Acadia, Louin, McKamie, Muskogee, and Woden soils are at slightly higher elevations than Wrightsville soils. Acadia and Louin soils are somewhat poorly drained, Muskogee soils are moderately well drained, and McKamie and Woden soils are well drained. None of the associated soils have tonguing of the A2 horizon into the B horizon.

Typical pedon of Wrightsville silt loam, 0 to 1 percent slopes, in a moist wooded area in the SW1/4SE1/4NW1/4 sec. 20, T. 19 S., R. 24 W.; in Lafayette County:

A11—0 to 3 inches; dark grayish brown (10YR 4/2) silt loam; common medium distinct light brownish gray (10YR 6/2) and common fine distinct yellowish brown (10YR 5/8) mottles; moderate medium granular structure; friable; very strongly acid; abrupt smooth boundary.

A12—3 to 7 inches; grayish brown (10YR 5/2) silt loam; common fine distinct yellowish brown (10YR 5/8) mottles; moderate medium granular structure; friable; very strongly acid; clear smooth boundary.

A2g—7 to 15 inches; light gray (10YR 7/1) silt loam; common fine distinct yellowish brown (10YR 5/8) mottles; moderate medium granular structure; friable; very strongly acid; abrupt irregular boundary.

B21tg&A2g—15 to 23 inches; light brownish gray (2.5Y 6/2) silty clay and 15 percent tongues of light gray (10YR 7/1) silt loam; common medium distinct yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; firm; very strongly acid; clear smooth boundary.

B21tg—23 to 43 inches; light brownish gray (2.5Y 6/2) silty clay; few fine distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky

structure; very firm; very strongly acid; clear smooth boundary.

B22tg—43 to 57 inches; light brownish gray (2.5Y 6/2) silty clay; common fine prominent yellowish red (5YR 4/6) mottles; moderate medium subangular blocky structure; very firm; very strongly acid; clear smooth boundary.

IIC1—57 to 69 inches; yellowish red (5YR 4/6) silty clay; massive; very firm; common fine black specks; medium acid; gradual smooth boundary.

IIC2—69 to 82 inches; yellowish red (5YR 4/6) silty clay; massive; very firm; slightly acid.

The solum thickness ranges from 45 to 60 inches or more. Reaction is very strongly acid or strongly acid in the A horizon. It ranges from very strongly acid to neutral in the B and C horizons.

Thickness of the A horizon ranges from 12 to 18 inches. The A1 horizon has hue of 10YR, value of 4 or 5, and chroma of 2. The A2g horizon has hue of 10YR, value of 5, 6, or 7, and chroma of 1 or 2. Mottles in shades of brown are few or common.

The B2tg horizon has hue of 10YR, value of 6, and chroma of 1 or 2; or it has hue of 2.5Y, value of 5 or 6, and chroma of 2. It is silty clay loam, silty clay, or clay. Tongues of gray or light gray silt loam extend into the B2tg horizon. Mottles in shades of brown or red are few or common and fine and medium.

The IIC horizon has hue of 2.5YR or 5YR, value of 4, and chroma of 6 or 8. It is silty clay loam, silty clay, or clay.

Yorktown Series

The Yorktown series consists of deep, very poorly drained soils that formed in clayey alluvium. Permeability is very slow. These soils are in low, ponded backswamps and abandoned oxbows of the Red River. They are ponded in 6 inches or more of water for 10 months or more in most years. The native vegetation was baldcypress and green ash. Slopes are 0 to 1 percent.

Yorktown soils are geographically associated with Billyhaw, Perry, and Rilla soils. Billyhaw and Perry soils are on broad flats. Billyhaw soils are somewhat poorly drained, and Perry soils are poorly drained. Rilla soils are on natural levees. They are well drained and have a fine-silty control section.

Typical pedon of Yorktown silty clay loam, frequently flooded, in the SE1/4SW1/4NW1/4 sec. 26, T. 15 S., R. 25 W.; in Lafayette County:

A1—0 to 6 inches; grayish brown (10YR 5/2) silty clay loam; few medium distinct dark brown (7.5YR 4/4) mottles; weak medium subangular blocky structure; firm; medium acid; clear smooth boundary.

B21g—6 to 26 inches; gray (5Y 5/1) clay; common medium prominent dark brown (7.5YR 4/4) mottles; moderate coarse subangular blocky structure; very firm; slightly acid; gradual smooth boundary.

B22g—26 to 34 inches; dark gray (5Y 4/1) clay; moderate medium subangular blocky structure; very firm; neutral; clear smooth boundary.

B23g—34 to 42 inches; gray (5Y 5/1) clay; common fine prominent reddish brown (5YR 4/4) mottles; moderate coarse subangular blocky structure; very firm; neutral; clear smooth boundary.

B24g—42 to 50 inches; gray (5Y 6/1) clay; common medium prominent reddish brown (5YR 4/4) mottles; moderate medium subangular blocky; very firm; neutral; clear smooth boundary.

IIB3—50 to 60 inches; reddish brown (5YR 4/4) clay; few fine prominent gray (5Y 6/1) mottles; moderate medium granular structure; very firm; mildly alkaline; calcareous.

The solum thickness is 50 inches or more. Depth to the IIB3 horizon ranges from 50 to 60 inches. Reaction ranges from medium acid to neutral in the A and B2g horizons. Reaction is mildly alkaline or moderately alkaline in the B3 horizon and is calcareous in some pedons.

The A horizon ranges fom 4 to 10 inches in thickness. The A horizon has hue of 10YR, value of 4 or 5, and chroma of 1 or 2.

The B2g horizons have hue of 5Y, value of 4, 5, or 6, and chroma of 1; or they have hue of 10YR, value of 4, and chroma of 1. Mottles are in shades of brown or gray.

The IIB3 horizon has hue of 5YR, value of 4, and chroma of 3 or 4, or value of 3 and chroma of 4.

Formation of the Soils

In this section the factors of soil formation are discussed and related to the soils in the survey area. In addition, the processes of soil formation are described.

Factors of Soil Formation

Soil is formed by weathering and other processes that act upon the soil. The characteristics of the soil at any given point depend upon climate, living organisms, parent material, relief, and time. Each factor acts on the soil and modifies the effect of the other four. If climate, living organisms, or any other of the five factors is varied to a significant extent, a different soil may be formed.

Climate and living organisms are the active forces in soil formation. Relief modifies the effects of climate and living organisms, mainly by its influence on temperature and runoff. Because climate, vegetation, parent material, and relief interact over a period of time, time is the fifth factor of soil formation. Therefore, the effect of time is also reflected in the soil characteristics.

The interaction of the five factors of soil formation is more complex in some soils than in others. The five factors and how they interact to form some of the soils in Lafayette, Little River, and Miller Counties are described in the following paragraphs.

Climate

The climate of Lafayette, Little River, and Miller Counties is characterized by warm summers, mild winters, and fairly abundant rainfall. The generally warm temperatures and high precipitation probably are similar to the climate under which the soils in the counties formed. For additional information about the climate, refer to the section "General Nature of the Survey Area."

The warm, moist climate of this area promotes rapid soil formation. The warm temperature encourages rapid chemical reactions. The large volume of water that moves through the soil is instrumental in removing dissolved or suspended materials. Because plant remains decompose rapidly, the organic acids thus formed hasten the removal of carbonates and the formation of clay minerals. Because the soil is frozen only in the upper few inches and for relatively short periods, soil formation continues almost year-round. The climate throughout the survey area is relatively uniform, although its effect is modified locally by runoff and slope aspect.

Living Organisms

The higher forms of plants and animals, as well as insects, bacteria, and fungi, are important in the formation of soils. Among the changes they cause are gains in organic matter and nitrogen in the soil, gains or losses in plant nutrients, and changes in structure and porosity.

Before Lafayette, Little River, and Miller Counties were settled, native vegetation had more influence on soil formation than did animal activity. Hardwood forest covered most of the bottom lands in all three counties. On the flood plains and low terraces, the trees were predominantly sweetgum, oak, ash, sycamore, hackberry, and pecan. Caspiana, Rilla, Severn, Oklared, Kiomatia, Amy, Guyton, Ouachita, and Sardis soils formed in these areas. In slack-water areas or swamps, the main trees were baldcypress, water tupelo, and water-tolerant hardwoods. Billyhaw, Perry, Latanier, and Yorktown soils formed in these areas.

On the uplands of the Coastal Plains, the forests were mainly mixed stands of hardwoods or hardwoods and pines. Bowie, Eylau, Harleston, Kamie, Ruston, Sacul, Saffell, Sawyer, Smithdale, and Woden soils formed in these areas. In the upland flatwoods, the trees were mainly oak, sweetgum, and pine. Acadia, Adaton, Felker, Gore, Harleston, Louin, McKamie, Midland, Muskogee, and Wrightsville soils formed in these areas.

On the uplands of the Blackland Prairies, the native vegetation was mainly tall native grasses together with some redcedar, elm, and osageorange. Demopolis, Catalpa, Houston, Oktibbeha, and Sumter soils formed in these areas. Mixed pine and hardwoods grew in many areas of the Oktibbeha soils. On the flood plains of the Blackland Prairies, the vegetation was baldcypress and hardwoods, such as oak, sweetgum, hackberry, and ash. Trinity soils formed in these areas.

In most of these soils, characteristics were influenced more by parent material, climate, and relief than by vegetation.

Man is an important factor in the future rate and direction of soil formation. He clears the forest, cultivates the soils, and introduces new kinds of plants. He adds fertilizer, lime, and chemicals to the soil for insect, disease, and weed control. His construction of levees

and dams for flood control, improvement of drainage, and grading of the soil surface also affect the future development of soils. Some results of these changes will not be evident for many centuries. Nevertheless, the complex of living organisms affecting soil formation in these counties has been drastically changed by man. Because of these changes, man has become the most important organism affecting soil formation.

Parent Material

The soils of Lafayette, Little River, and Miller Counties formed in three broad classes of parent material: alluvium deposited by major streams, Coastal Plain sediment deposited when the Gulf of Mexico covered southern and eastern Arkansas, and residuum weathered from chalk and marl.

Along the Red River in Little River, Miller, and Lafayette Counties, the parent material is alluvium deposited by the Red River. This alluvium came mainly from the Permian red beds in western Texas and Oklahoma. Billyhaw, Caspiana, Kiomatia, Latanier, Oklared, Perry, Rilla, Severn, and Yorktown soils formed in this alluvium.

Along the Little River in the northern part of Little River County, the parent material is alluvium deposited by the Little River. This alluvium came mainly from the Ouachita Mountains. Guyton, Ouachita, Ochlockonee, and Sardis soils formed in this alluvium.

Along the Sulphur River in Miller County, the Gladewater soil formed in alluvium that came mainly from the Blackland Prairies in Texas.

The Coastal Plains sediment in the uplands of Lafayette, Little River, and Miller Counties was deposited when the Gulf of Mexico covered southern Arkansas. This sediment is mainly loamy and clayey. Acadia, Adaton, Amy, Bowie, Briley, Eylau, Felker, Harleston, Kamie, Latonia, Louin, Ruston, Sacul, Saffell, Sawyer, Smithdale, Smithton, Woden, and Wrightsville soils formed in this sediment.

In the western part of Little River County the soils formed in residuum weathered from chalk and marl. Demopolis, Houston, Kipling, Oktibbeha, and Sumter soils formed on uplands, and Catalpa and Trinity soils formed on flood plains.

Relief

Relief is the inequalities in elevation of a land surface. Soil formation is influenced by the affect of relief upon drainage, runoff, erosion, and percolation of water through the soil. Some of the greatest differences among the soils are due mainly to differences in relief.

Time

The length of time required for formation of a soil depends mainly on the other factors of soil formation. Less time usually is required if the climate is warm and humid, the vegetation is luxuriant, and the parent material is loamy. Older soils generally show a greater degree of differentiation among horizons.

The soils of the uplands generally have the most strongly developed argillic horizons and are the most mature soils in Lafayette, Little River, and Miller Counties. Soils on the flood plains consist of younger material and are much less mature than most soils on the uplands. Severn, Oklared, and Kiomatia soils are younger soils.

Processes of Soil Formation

A brief definition of horizon nomenclature and the processes responsible for soil formation are given in the following paragraphs.

The evidence that soil-forming factors leave on the soil is recorded in the soil profile. The soil profile is a succession of layers, or horizons, from the surface to the parent rock. These horizons differ in one or more properties, such as color, texture, structure, consistency, and porosity.

Most soil profiles contain three major horizons called A, B, and C. Very young soils do not have a B horizon.

The A horizon is the horizon of maximum accumulation of organic matter. It is made up of the surface layer, or A1 horizon, or it is the horizon of maximum leaching of dissolved or suspended material and is called the A2 horizon or subsurface layer.

The B horizon is below the A horizon and is sometimes called the subsoil. It is the horizon of maximum accumulation of suspended material, such as clay and iron. The B horizon commonly has blocky structure and is firmer than the horizons immediately above and below it.

Below the B horizon is the C horizon. This horizon is little affected by soil-forming processes but can be materially modified by weathering. In some young soils, the C horizon immediately underlies the A horizon and has been slightly modified by living organisms as well as weathering.

Several processes have been active in the formation of soil horizons in Lafayette, Little River, and Miller Counties. Among these processes are: (1) the accumulation of organic matter, (2) the leaching of bases, (3) the oxidation or reduction and transfer of iron, and (4) the formation and translocation of silicate clay minerals. In most of the soils of these counties, more than one process have been active in soil formation.

The accumulation of organic matter in the upper part of the profile to form an A1 horizon has been an important process in soil formation. The A1 horizon is darker than the A2 horizon because it has more organic matter. In the A2 horizon, organic matter, as well as clay minerals and iron oxide, has been removed. The content of organic matter ranges from very low to moderate in most of the soils of Lafayette, Little River, and Miller Counties.

Leaching of bases has occurred to some degree in nearly all of the soils of Lafayette, Little River, and Miller Counties. Soil scientists generally agree that bases are leached downward in soils before silicate clay minerals begin to move.

Oxidation of iron is evident in the moderately well drained and well drained soils in the survey area. This oxidation is indicated by the red and brown colors in the B horizon of the Bowie, Smithdale, and Sacul soils.

Reduction and transfer of iron is apparent in the poorly drained and somewhat poorly drained soils of the lowlands. In the naturally wet soils, this process is called gleying. The gray colors in the horizons below the surface layer indicate the reduction and loss of iron. Some horizons contain reddish or yellowish mottles and concretions derived from segregated iron. Gleying is very pronounced in the Amy, Guyton, and Wrightsville soils.

Translocation of silicate clay minerals has contributed to horizon development in most of the soils in the counties. Most of the eluviated A2 horizon has been destroyed in the cultivated areas, but where it occurs the structure is usually weak subangular blocky, clay content is less than in the lower horizons where it has accumulated, and the horizon is lighter in color. Clay films generally have accumulated in pores and on the surface of peds in the B horizon. The soils were probably leached of carbonates and soluble salts to a great extent before translocation of silicate clay occurred, even though the content of bases is still high in some of the soils on lowlands.

Leaching of bases and translocation of silicate clay are among the most important processes in horizon differentiation among the soils of Lafayette, Little River, and Miller Counties.

References

(1) American Association of State Highway [and Transportation] Officials. 1970. Standard specifications for highway materials and methods of sampling and testing. Ed. 10, 2 vol., illus.

(2) American Society for Testing and Materials. 1974. Method for classification of soils for engineering purposes. ASTM Stand. D 2487-69. *In* 1974 Annual Book of ASTM Standards, Part 19, 464 pp., illus.

(3) United States Department of Agriculture. 1904. Soil survey of Miller County, Arkansas. Bur. of Soils, 18 pp.

(4) United States Department of Agriculture. 1951. Soil survey manual. U.S. Dep. Agric. Handb. 18, 503 pp., illus. [Supplements replacing pp. 173-188 issued May 1962.]

(5) United States Department of Agriculture. 1975. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. Soil Conserv. Serv., U.S. Dep. Agric. Handb. 436, 754 pp., illus.

Glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly such soil formed in recent alluvium or on steep rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Association, soil. A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	More than 12

Base saturation. The degree to which material having cation exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation exchange capacity.

Bedding planes. Fine stratifications, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediments.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity, but is more precise in meaning.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15.2 to 38.1 centimeters (6 to 15 inches) long.

Coarse textured soil. Sand or loamy sand.

Colluvium. Soil material, rock fragments, or both moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures on a complex slope is difficult.

Compressible (in tables). Excessive decrease in volume of soft soil under load.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the

surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

Edge habitat. The junction where one major land use cover type ends and another begins. Edge habitat is of prime importance to both birds and animals. Most plants and animals that inhabit openland and woodland are also in the edge habitat. Desirable edge habitats are consistently used by more wildlife than are the center of large fields of either woodland or cropland. An example of edge habitat is the outside edge of a thick woodland that parallels the outside edge of a no-till field of corn.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, and clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Foot slope. The inclined surface at the base of a hill.

Forb. Any herbaceous plant not a grass or a sedge.

Fragile (in tables). A soil that is easily damaged by use or disturbance.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gilgai. Commonly a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of Vertisols—clayey soils having a high coefficient of expansion and contraction with changes in moisture content.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, up to 3 inches (7.5 centimeters) in diameter.

Ground water (geology). Water filling all the unblocked pores of underlying material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced

by soil-forming processes. In the identification of soil horizons, an upper case letter represents the major horizons. Numbers or lower case letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the *Soil Survey Manual*. The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the Roman numeral II precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are—

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Large stones (in tables). Rock fragments 3 inches (7.5 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. The soil is not strong enough to support loads.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Sandy loam and fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, and silty clay loam.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.20 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. The water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered, or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Rippable. Bedrock or hardpan can be excavated using a single-tooth ripping attachment mounted on a tractor with a 200-300 draw bar horsepower rating.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-size particles.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and runoff water.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slippage (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then

multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slow intake (in tables). The slow movement of water into the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.5 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 mm in equivalent diameter and ranging between specified size limits. The names and sizes of separates recognized in the United States are as follows:

	Millimeters
Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands which provide vegetative barriers to wind and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Breaking up a compact subsoil by pulling a special chisel through the soil.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, are in soils in extremely small amounts. They are essential to plant growth.

Unstable fill (in tables). Risk of caving or sloughing on banks of fill material.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Variant, soil. A soil having properties sufficiently different from those of other known soils to justify a new series name, but occurring in such a limited

geographic area that creation of a new series is not justified.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

[Recorded in the period 1951-79 at Texarkana, Arkansas]

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average daily	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days[1]	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	53.5	34.5	44.0	79	12	55	3.64	1.86	5.19	6	1.0
February---	58.6	38.0	48.3	80	18	95	3.36	1.69	4.81	6	.6
March------	66.0	44.8	55.4	86	10	230	4.18	2.03	6.03	7	.1
April------	75.1	54.0	64.6	88	34	438	5.09	1.88	7.77	7	.0
May--------	82.3	61.9	72.1	92	44	685	4.40	2.11	6.37	6	.0
June-------	89.0	69.1	79.1	99	55	873	3.88	1.48	5.88	5	.0
July-------	92.8	72.5	82.7	102	62	1,014	3.58	2.05	4.93	6	.0
August-----	92.5	71.3	81.9	102	60	989	3.28	1.21	4.99	5	.0
September--	86.4	65.4	75.9	98	47	777	3.44	.85	5.49	5	.0
October----	77.5	54.2	65.9	93	36	493	2.79	.90	4.35	4	.0
November---	65.1	43.9	54.5	83	23	184	3.85	1.65	5.71	5	.1
December---	56.8	37.4	47.1	79	16	67	3.96	1.81	5.79	6	.3
Yearly:											
Average--	74.6	53.9	64.3	---	---	---	---	---	---	---	---
Extreme--	---	---	---	104	11	---	---	---	---	---	---
Total----	---	---	---	---	---	5,900	43.45	37.50	53.01	68	2.1

[1] A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50° F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

[Recorded in the period 1951-79 at Texarkana, Arkansas]

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	March 17	March 26	March 29
2 years in 10 later than--	March 6	March 15	March 24
5 years in 10 later than--	February 14	February 22	March 13
First freezing temperature in fall:			
1 year in 10 earlier than--	November 15	November 9	October 28
2 years in 10 earlier than--	November 23	November 15	October 3
5 years in 10 earlier than--	December 9	November 27	November 13

TABLE 3.--GROWING SEASON

[Recorded in the period 1951-79 at Texarkana, Arkansas]

Probability	Length of growing season if daily minimum temperature is--		
	Higher than 24° F	Higher than 28° F	Higher than 32° F
	Days	Days	Days
9 years in 10	264	243	220
8 years in 10	276	254	228
5 years in 10	298	277	245
2 years in 10	326	300	261
1 year in 10	365	312	270

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Lafayette County	Little River County	Miller County	Total-- Area	Total-- Extent
		Acres	Acres	Acres	Acres	Pct
1	Acadia silt loam, 0 to 2 percent slopes	18,817	16,589	2,097	37,503	3.5
2	Adaton silt loam, 0 to 1 percent slopes	14,871	3,209	1,777	19,857	1.9
3	Amy silt loam, 0 to 1 percent slopes	196	157	533	886	0.1
4	Amy silt loam, frequently flooded	0	0	21,949	21,949	2.1
5	Billyhaw clay, 0 to 1 percent slopes	16,088	36,570	42,788	95,446	8.9
6	Billyhaw clay, gently undulating	1,014	200	1,996	3,210	0.3
7	Billyhaw clay, 0 to 1 percent slopes, occasionally flooded	417	546	382	1,345	0.1
8	Billyhaw clay, 0 to 1 percent slopes, frequently flooded	248	643	2,935	3,826	0.4
9	Bowie fine sandy loam, 1 to 3 percent slopes	7,628	5,860	12,388	25,876	2.4
10	Bowie fine sandy loam, 3 to 8 percent slopes	3,016	1,817	20,140	24,973	2.3
11	Briley loamy fine sand, 1 to 3 percent slopes	75	0	589	664	0.1
12	Briley loamy fine sand, 3 to 8 percent slopes	83	0	2,596	2,679	0.3
13	Briley loamy fine sand, 8 to 12 percent slopes	33	193	2,204	2,430	0.2
14	Caspiana silt loam, 0 to 1 percent slopes	4,851	3,134	6,157	14,142	1.3
15	Catalpa silty clay, 0 to 1 percent slopes	0	940	0	940	0.1
16	Demopolis silty clay loam, 3 to 20 percent slopes, eroded	0	1,437	0	1,437	0.1
17	Eylau fine sandy loam, 1 to 3 percent slopes	1,607	5,320	5,511	12,438	1.2
18	Eylau fine sandy loam, 3 to 5 percent slopes	1,073	3,628	13,362	18,063	1.7
19	Eylau-Urban land complex, 1 to 3 percent slopes	0	0	1,014	1,014	0.1
20	Eylau-Urban land complex, 3 to 5 percent slopes	0	0	1,278	1,278	0.1
21	Felker silt loam, 0 to 1 percent slopes	328	33,904	57	34,289	3.2
22	Fluvaquents, frequently flooded	22	500	1,692	2,214	0.2
23	Foley silt loam, 0 to 2 percent slopes	0	5,989	213	6,202	0.6
24	Forbing silt loam, 1 to 3 percent slopes	0	4,509	0	4,509	0.4
25	Forbing silt loam, 3 to 8 percent slopes	793	3,210	0	4,003	0.4
26	Gladewater clay, frequently flooded	0	0	11,012	11,012	1.0
27	Gore silt loam, 1 to 3 percent slopes	8,330	7,235	2,299	17,864	1.7
28	Gore silt loam, 3 to 8 percent slopes	5,345	1,209	3,378	9,932	0.9
29	Guyton silt loam, frequently flooded	29,104	24,191	5,109	58,404	5.5
30	Harleston fine sandy loam, 1 to 3 percent slopes	6,998	22,837	2,681	32,516	3.0
31	Houston clay, 1 to 3 percent slopes	0	478	0	478	1
32	Houston clay, 3 to 8 percent slopes	0	359	0	359	1
33	Kamie fine sandy loam, 1 to 3 percent slopes	297	9,829	144	10,270	1.0
34	Kamie fine sandy loam, 3 to 8 percent slopes	1,052	10,070	332	11,454	1.1
35	Kamie fine sandy loam, 8 to 20 percent slopes	771	178	338	1,287	0.1
36	Kiomatia loamy fine sand, frequently flooded	3,047	2,312	4,465	9,824	0.9
37	Kipling silt loam, 2 to 5 percent slopes	0	7,071	0	7,071	0.7
38	Latanier clay, gently undulating	5,226	3,395	5,469	14,090	1.3
39	Latonia loamy fine sand, 2 to 5 percent slopes	170	0	1,255	1,425	0.1
40	Louin silty clay loam, 0 to 1 percent slopes	20,131	5,476	200	25,807	2.4
41	McKamie silt loam, 2 to 5 percent slopes	10,629	6,337	2,600	19,566	1.8
42	McKamie silt loam, 5 to 20 percent slopes	3,465	186	1,285	4,936	0.5
43	Midland silty clay loam, 0 to 1 percent slopes	0	5,851	0	5,851	0.5
44	Morse clay, 3 to 8 percent slopes, eroded	1,684	896	320	2,900	0.3
45	Muskogee silt loam, 1 to 3 percent slopes	9,648	7,451	6,192	23,291	2.2
46	Muskogee silt loam, 3 to 8 percent slopes	1,122	2,412	1,482	5,016	0.5
47	Oklared fine sandy loam, gently undulating	3,898	913	1,652	6,463	0.6
48	Oklared fine sandy loam, occasionally flooded	459	1,071	2,295	3,825	0.4
49	Oktibbeha silt loam, 3 to 8 percent slopes	0	3,363	0	3,363	0.3
50	Oktibbeha silt loam, 8 to 12 percent slopes	0	532	0	532	1
51	Ouachita silt loam, occasionally flooded	184	1,355	0	1,539	0.1
52	Ouachita and Ochlockonee soils, occasionally flooded	71	2,613	0	2,684	0.3
53	Perry clay, 0 to 1 percent slopes	25,218	2,618	43,566	71,402	6.7
54	Perry clay, frequently flooded	574	1,108	4,239	5,921	0.6
55	Rilla silt loam, 0 to 1 percent slopes	5,299	2,694	11,386	19,379	1.8
56	Rilla silt loam, gently undulating	1,874	1,400	864	4,138	0.4
57	Ruston fine sandy loam, 2 to 5 percent slopes	8,053	1,557	4,981	14,591	1.4
58	Sacul fine sandy loam, 1 to 3 percent slopes	2,891	1,617	2,630	7,138	0.7
59	Sacul fine sandy loam, 3 to 8 percent slopes	8,815	3,422	31,340	43,577	4.1
60	Sacul fine sandy loam, 8 to 12 percent slopes	1,833	160	22,325	24,318	2.3
61	Sacul fine sandy loam, 12 to 20 percent slopes	906	0	12,002	12,908	1.2
62	Sacul fine sandy loam, 20 to 40 percent slopes	462	0	3,347	3,809	0.4
63	Sacul-Urban land complex, 3 to 8 percent slopes	0	0	2,331	2,331	0.2
64	Saffell gravelly fine sandy loam, 1 to 3 percent slopes	453	2,368	31	2,852	0.3
65	Saffell gravelly fine sandy loam, 3 to 8 percent slopes	1,633	2,391	600	4,624	0.4

See footnotes at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Lafayette County	Little River County	Miller County	Total-- Area	Total-- Extent
		Acres	Acres	Acres	Acres	Pct
66	Saffell gravelly fine sandy loam, 8 to 12 percent slopes	316	0	673	989	0.1
67	Sardis silt loam, occasionally flooded	166	1,394	648	2,208	0.2
68	Sardis silt loam, frequently flooded	0	6,290	318	6,608	0.6
69	Sawyer silt loam, 1 to 3 percent slopes	1,589	1,197	7,964	10,750	1.0
70	Sawyer silt loam, 3 to 8 percent slopes	0	225	4,843	5,068	0.5
71	Severn silt loam, 0 to 1 percent slopes	5,094	2,205	4,429	11,728	1.1
72	Severn silt loam, gently undulating	12,469	15,389	16,087	43,945	4.1
73	Severn silt loam, occasionally flooded	2,028	1,561	1,588	5,177	0.5
74	Smithdale fine sandy loam, 5 to 8 percent slopes	13,982	465	14,388	28,835	2.7
75	Smithton fine sandy loam, 0 to 2 percent slopes	3,631	3,454	1,935	9,020	0.8
76	Sumter silty clay loam, 5 to 12 percent slopes, eroded	0	4,163	0	4,163	0.4
77	Trinity clay, occasionally flooded	0	930	0	930	0.1
78	Udorthents	2,330	576	1,578	4,484	0.4
79	Woden fine sandy loam, 0 to 1 percent slopes	2,525	0	0	2,525	0.2
80	Woden fine sandy loam, 1 to 3 percent slopes	2,802	0	0	2,802	0.3
81	Woden fine sandy loam, 3 to 8 percent slopes	1,189	0	0	1,189	0.1
82	Wrightsville silt loam, 0 to 1 percent slopes	43,530	18,858	8,113	70,501	6.6
83	Yorktown silty clay loam, frequently flooded	1,710	1,924	768	4,402	0.4
	Small water areas[2]	301	1,046	1,516	2,863	0.2
	Total land area[3]	334,464	334,987	398,656	1,068,107	100.0
	Large water areas[4]	18,176	20,893	12,224	51,293	---
	Total	352,640	355,880	410,880	1,115,400	100.0

[1] Less than 0.1 percent.
[2] Enclosed areas of water less than 40 acres in size, and streams, sloughs, and canals less than one-eighth of a statute mile in width.
[3] Total land area includes 899 acres of Bowie County, Texas, that was mapped north of Red River and is published in this report, but does not include 4,059 acres of Little River County, Arkansas, that is south of Red River and was mapped and published in the Bowie County, Texas, soil survey.
[4] Enclosed areas of water more than 40 acres in size. Streams, sloughs, and canals more than one-eighth of a statute mile in width.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. Absence of a yield figure indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Map symbol and soil name	Soybeans	Rice	Cotton lint	Wheat	Tall fescue	Common bermudagrass	Improved bermudagrass
	Bu	Bu	Lb	Bu	AUM*	AUM*	AUM*
1 Acadia	25	110	---	---	6.0	5.0	6.0
2 Adaton	30	110	---	---	7.0	6.0	8.0
3 Amy	25	---	---	---	6.0	6.0	7.0
4 Amy	---	---	---	---	4.0	6.0	7.0
5 Billyhaw	35	130	500	35	9.0	7.0	8.0
6 Billyhaw	30	---	450	30	9.0	7.0	8.0
7 Billyhaw	30	130	400	30	6.0	6.0	7.0
8 Billyhaw	25	---	---	---	---	5.0	6.0
9 Bowie	25	---	---	---	---	7.0	10.0
10 Bowie	20	---	---	---	---	7.0	10.0
11 Briley	---	---	---	---	---	---	10.0
12 Briley	---	---	---	---	---	---	9.0
13 Briley	---	---	---	---	---	---	8.0
14 Caspiana	40	---	875	40	---	8.0	10.0
15 Catalpa	35	---	---	---	9.0	8.5	9.0
16 Demopolis	---	---	---	---	---	4.5	---
17 Eylau	25	---	---	---	---	8.0	10.0
18 Eylau	20	---	---	---	---	7.0	9.0
19 Eylau-Urban land	---	---	---	---	---	---	---
20 Eylau-Urban land	---	---	---	---	---	---	---
21 Felker	20	---	---	---	5.5	4.0	5.0
22 Fluvaquents	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Soybeans	Rice	Cotton lint	Wheat	Tall fescue	Common bermuda-grass	Improved bermuda-grass
	Bu	Bu	Lb	Bu	AUM*	AUM*	AUM*
23 Foley	25	120	---	---	8.0	6.0	---
24 Forbing	---	---	---	---	---	4.5	6.0
25 Forbing	---	---	---	---	---	4.5	6.0
26 Gladewater	---	---	---	---	---	5.0	6.0
27 Gore	20	---	---	---	---	4.5	6.0
28 Gore	---	---	---	---	---	4.0	5.5
29 Guyton	---	---	---	---	---	4.5	5.5
30 Harleston	25	---	---	25	---	---	10.0
31 Houston	30	---	---	35	---	7.0	9.0
32 Houston	25	---	---	30	---	6.0	8.0
33 Kamie	30	---	450	30	---	6.0	8.0
34 Kamie	25	---	400	25	---	6.0	8.0
35 Kamie	---	---	---	---	---	4.0	5.5
36 Kiomatia	---	---	---	---	---	6.0	7.5
37 Kipling	25	---	---	---	6.5	7.0	8.5
38 Latanier	30	---	650	40	9.0	6.0	10.0
39 Latonia	25	---	---	25	---	7.0	9.5
40 Louin	25	120	---	---	---	6.0	8.0
41 McKamie	20	---	---	---	---	5.0	7.0
42 McKamie	---	---	---	---	---	4.5	6.0
43 Midland	25	120	---	---	---	6.5	7.0
44 Morse	---	---	---	---	---	4.0	5.0
45 Muskogee	30	---	---	35	6.5	7.0	10.0

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Soybeans	Rice	Cotton lint	Wheat	Tall fescue	Common bermuda-grass	Improved bermuda-grass
	Bu	Bu	Lb	Bu	AUM*	AUM*	AUM*
46 Muskogee	25	---	---	30	6.0	7.0	10.0
47 Oklared	30	---	650	40	7.0	6.0	8.0
48 Oklared	30	---	650	30	7.0	6.0	8.0
49 Oktibbeha	---	---	---	---	6.0	6.0	7.0
50 Oktibbeha	---	---	---	---	5.5	5.5	6.5
51 Ouachita	35	---	---	---	8.0	9.0	10.0
52 Ouachita and Ochlockonee	35	---	---	---	6.0	7.0	10.0
53 Perry	35	130	---	---	7.5	6.5	---
54 Perry	30	---	---	---	---	5.0	---
55 Rilla	40	---	900	---	---	7.5	10.0
56 Rilla	35	---	850	---	---	7.0	10.0
57 Ruston	25	---	650	30	---	6.5	10.0
58 Sacul	25	---	---	30	---	6.5	9.0
59 Sacul	---	---	---	---	---	6.5	9.0
60, 61 Sacul	---	---	---	---	---	5.5	7.0
62 Sacul	---	---	---	---	---	---	---
63 Sacul-Urban land	---	---	---	---	---	---	---
64 Saffell	---	---	---	---	---	4.5	5.5
65 Saffell	---	---	---	---	---	4.0	5.0
66 Saffell	---	---	---	---	---	3.5	4.5
67 Sardis	35	---	600	---	8.0	7.0	9.0
68 Sardis	30	---	---	---	---	6.0	8.0
69 Sawyer	25	---	---	30	7.0	7.0	9.0

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Soybeans	Rice	Cotton lint	Wheat	Tall fescue	Common bermuda-grass	Improved bermuda-grass
	Bu	Bu	Lb	Bu	AUM*	AUM*	AUM*
70------------------------ Sawyer	20	---	---	25	7.0	7.0	9.0
71------------------------ Severn	40	---	700	40	---	8.0	10.0
72------------------------ Severn	35	---	700	40	---	8.0	10.0
73------------------------ Severn	35	---	650	30	---	7.0	8.0
74------------------------ Smithdale	---	---	---	---	---	7.0	9.0
75------------------------ Smithton	25	---	---	---	7.0	7.0	8.0
76------------------------ Sumter	---	---	---	---	---	---	---
77------------------------ Trinity	30	---	---	---	---	6.0	8.0
78. Udorthents							
79------------------------ Woden	30	---	650	35	---	8.0	10.0
80------------------------ Woden	30	---	650	35	---	8.0	10.0
81------------------------ Woden	25	---	600	30	---	8.0	10.0
82------------------------ Wrightsville	25	120	---	---	7.0	7.0	9.0
83------------------------ Yorktown	---	---	---	---	---	---	---

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available]

Map symbol and soil name	Wood-land suita-bility group	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equip-ment limita-tion	Seedling mortal-ity	Common trees	Site index	
1----------------- Acadia	3w8	Slight	Moderate	Slight	Loblolly pine---------- Shortleaf pine--------- Sweetgum--------------- Water oak--------------	83 75 80 80	Loblolly pine.
2----------------- Adaton	2w9	Slight	Severe	Severe	Water oak-------------- Loblolly pine---------- Sweetgum---------------	80 80 80	Shumard oak, loblolly pine, sweetgum.
3----------------- Amy	2w9	Slight	Severe	Severe	Loblolly pine---------- Shortleaf pine--------- Sweetgum---------------	90 80 90	Loblolly pine, sweetgum, cherrybark oak.
4----------------- Amy	2w9	Slight	Severe	Severe	Loblolly pine---------- Sweetgum--------------- Water oak--------------	90 90 90	Loblolly pine, sweetgum, eastern cottonwood, green ash, American sycamore, Nuttall oak, cherrybark oak.
5, 6, 7, 8--------- Billyhaw	2w6	Slight	Severe	Moderate	Green ash-------------- Eastern cottonwood----- Cherrybark oak--------- Water oak-------------- Willow oak-------------	85 100 90 90 90	Green ash, eastern cottonwood, water oak.
9, 10------------- Bowie	2o1	Slight	Slight	Slight	Loblolly pine---------- Shortleaf pine---------	86 80	Loblolly pine, shortleaf pine.
11, 12, 13--------- Briley	3s2	Slight	Slight	Moderate	Loblolly pine---------- Shortleaf pine---------	80 70	Loblolly pine.
14---------------- Caspiana	2o4	Slight	Slight	Slight	Green ash-------------- Eastern cottonwood----- Cherrybark oak--------- Pecan------------------ Sweetgum--------------- American sycamore------	75 105 100 --- 100 ---	Eastern cottonwood, sweetgum, American sycamore, cherrybark oak.
15---------------- Catalpa	1w5	Slight	Moderate	Moderate	Eastern cottonwood----- Green ash-------------- Sweetgum--------------- American sycamore------ Hackberry--------------	110 90 100 100 ---	Eastern cottonwood, sweetgum, American sycamore, cherry-bark oak.
16---------------- Demopolis	4d3	Moderate	Moderate	Severe	Eastern redcedar-------	40	Eastern redcedar.
17, 18------------ Eylau	3o1	Slight	Slight	Slight	Loblolly pine---------- Shortleaf pine--------- Southern red oak-------	73 71 ---	Loblolly pine.

See footnote at end of table.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Wood-land suita-bility group	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equip-ment limita-tion	Seedling mortal-ity	Common trees	Site index	
21 Felker	2w8	Slight	Moderate	Moderate	Loblolly pine Sweetgum Shortleaf pine Water oak	90 95 75 85	Loblolly pine.
23 Foley	3w9	Slight	Severe	Moderate	Sweetgum Cherrybark oak Water oak Loblolly pine	80 80 80 60	Sweetgum, loblolly pine.
24, 25 Forbing	4c2	Slight	Moderate	Moderate	Loblolly pine Shortleaf pine	70 60	Loblolly pine.
26 Gladewater	2w6	Slight	Severe	Moderate	Water oak Willow oak Green ash	90 90 ---	Water oak, sweetgum.
27, 28 Gore	3c2	Slight	Moderate	Moderate	Loblolly pine Shortleaf pine	76 ---	Loblolly pine.
29 Guyton	2w9	Slight	Severe	Moderate	Loblolly pine Water oak Sweetgum Green ash Southern red oak	90 --- --- --- ---	Loblolly pine, sweetgum.
30 Harleston	2w8	Slight	Moderate	Slight	Loblolly pine Shortleaf pine Sweetgum	90 80 75	Loblolly pine.
31, 32 Houston	4c2	Slight	Moderate	Moderate	Eastern redcedar	40	Eastern redcedar.
33, 34, 35 Kamie	3o1	Slight	Slight	Slight	Shortleaf pine Southern red oak White oak	70 --- ---	Shortleaf pine, loblolly pine.
36 Kiomatia	2w5	Slight	Moderate	Moderate	Eastern cottonwood Sweetgum	100 95	Eastern cottonwood, sweetgum, American sycamore.
37 Kipling	2c8	Slight	Moderate	Moderate	Cherrybark oak Loblolly pine Shumard oak Sweetgum Water oak White oak	90 90 85 90 80 80	Cherrybark oak, loblolly pine, Shumard oak, sweetgum.
38 Latanier	2w5	Slight	Moderate	Moderate	Green ash Cherrybark oak Water oak Pecan Sweetgum Eastern cottonwood American sycamore	80 90 90 --- 90 110 ---	Eastern cottonwood, American sycamore.
39 Latonia	2o1	Slight	Slight	Slight	Loblolly pine	90	Loblolly pine.
40 Louin	3w9	Slight	Severe	Moderate	Loblolly pine Shortleaf pine Sweetgum	85 75 80	Loblolly pine, shortleaf pine.

See footnote at end of table.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Woodland suitability group	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Trees to plant
41, 42 McKamie	3c2	Slight	Moderate	Moderate	Loblolly pine Shortleaf pine	80 70	Loblolly pine.
43 Midland	2w6	Slight	Severe	Moderate	Green ash Water oak Sweetgum Eastern cottonwood	--- 90 90 ---	Eastern cottonwood, water oak, sweetgum.
44 Morse	4c3	Moderate	Severe	Severe	Loblolly pine Eastern redcedar	66 60	Eastern redcedar.
45, 46 Muskogee	3o7	Slight	Slight	Slight	Shortleaf pine Sweetgum Loblolly pine Water oak Southern red oak	70 80 --- --- ---	Loblolly pine, shortleaf pine, eastern redcedar, Shumard oak, water oak, sweetgum.
47, 48 Oklared	2o4	Slight	Slight	Slight	Eastern cottonwood Pecan Hackberry	100 75 75	Eastern cottonwood, American sycamore, pecan, black walnut, sweetgum.
49, 50 Oktibbeha	3c8	Slight	Moderate	Moderate	Loblolly pine Shortleaf pine Eastern redcedar Southern red oak	76 66 45 70	Loblolly pine, eastern redcedar.
51 Ouachita	1w8	Slight	Moderate	Slight	Loblolly pine Sweetgum Eastern cottonwood	100 100 100	Loblolly pine, sweetgum, Nuttall oak, American sycamore, eastern cottonwood.
52:*							
Ouachita	1w8	Slight	Moderate	Slight	Loblolly pine Sweetgum Eastern cottonwood	100 100 100	Loblolly pine, sweetgum, Nuttall oak, American sycamore, eastern cottonwood.
Ochlockonee	1o7	Slight	Slight	Slight	Eastern cottonwood Loblolly pine Sweetgum Water oak	100 100 90 80	Loblolly pine, eastern cottonwood.
53 Perry	2w6	Slight	Severe	Moderate	Cherrybark oak Eastern cottonwood Green ash Sweetgum Water oak Pecan Water hickory	--- 90 72 92 --- --- ---	Eastern cottonwood, sweetgum.
54 Perry	3w6	Slight	Severe	Severe	Eastern cottonwood Green ash Sweetgum Water oak Water hickory	85 70 --- --- ---	Eastern cottonwood, sweetgum.
55, 56 Rilla	2o4	Slight	Slight	Slight	Eastern cottonwood Cherrybark oak Nuttall oak Sweetgum Pecan American sycamore	100 100 85 100 --- ---	Eastern cottonwood, American sycamore, cherrybark oak, sweetgum.

See footnote at end of table.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Wood-land suita-bility group	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equip-ment limita-tion	Seedling mortal-ity	Common trees	Site index	
57 Ruston	3o1	Slight	Slight	Slight	Loblolly pine Shortleaf pine	84 75	Loblolly pine.
58, 59, 60, 61 Sacul	3c2	Moderate	Slight	Slight	Loblolly pine Shortleaf pine	80 70	Loblolly pine, shortleaf pine.
62 Sacul	3c2	Moderate	Moderate	Slight	Loblolly pine Shortleaf pine	80 70	Loblolly pine, shortleaf pine.
64, 65, 66 Saffell	4f2	Slight	Slight	Moderate	Loblolly pine Shortleaf pine Eastern redcedar	70 60 ---	Loblolly pine, shortleaf pine, eastern redcedar.
67, 68 Sardis	1w8	Slight	Moderate	Moderate	Loblolly pine Sweetgum Water oak	96 100 96	Loblolly pine, sweetgum.
69, 70 Sawyer	2w8	Slight	Moderate	Slight	Loblolly pine	90	Loblolly pine.
71, 72, 73 Severn	2o4	Slight	Slight	Slight	Eastern cottonwood Pecan Hackberry	100 76 76	Eastern cottonwood, American sycamore, pecan, sweetgum.
74 Smithdale	3o1	Slight	Slight	Slight	Loblolly pine Shortleaf pine	80 69	Loblolly pine.
75 Smithton	2w9	Slight	Severe	Severe	Loblolly pine Shortleaf pine Sweetgum Cherrybark oak Water oak	90 80 90 90 90	Loblolly pine, sweetgum, cherrybark oak, Shumard oak.
76 Sumter	4c2	Moderate	Moderate	Moderate	Eastern redcedar	37	Eastern redcedar.
77 Trinity	1w6	Slight	Severe	Moderate	Eastern cottonwood Pin oak Green ash	106 --- ---	Eastern cottonwood, green ash.
79, 80, 81 Woden	2o7	Slight	Slight	Slight	Loblolly pine Shortleaf pine Sweetgum Southern red oak	90 80 90 80	Loblolly pine.
82 Wrightsville	3w9	Slight	Severe	Moderate	Loblolly pine Sweetgum Water oak	80 80 80	Loblolly pine, sweetgum, water oak, willow oak.
83 Yorktown	4w9	Slight	Severe	Severe	Baldcypress Water tupelo Water hickory Green ash	70 --- --- ---	Baldcypress, green ash, water tupelo.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 7.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails
1 Acadia	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.
2 Adaton	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
3 Amy	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
4 Amy	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.
5, 6, 7 Billyhaw	Severe: flooding, wetness, percs slowly.	Severe: too clayey, percs slowly.	Severe: too clayey, wetness.	Severe: too clayey.
8 Billyhaw	Severe: flooding, wetness, percs slowly.	Severe: too clayey, percs slowly.	Severe: too clayey, wetness, flooding.	Severe: too clayey.
9, 10 Bowie	Slight	Slight	Moderate: slope.	Slight.
11, 12 Briley	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.
13 Briley	Moderate: slope, too sandy.	Moderate: slope, too sandy.	Severe: slope.	Moderate: too sandy.
14 Caspiana	Slight	Slight	Slight	Slight.
15 Catalpa	Severe: flooding, too clayey.	Severe: too clayey.	Severe: too clayey.	Severe: too clayey.
16 Demopolis	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: erodes easily.
17, 18 Eylau	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly, slope.	Slight.
19,* 20:*				
Eylau	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly, slope.	Slight.
Urban land.				
21 Felker	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Slight.

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails
22*. Fluvaquents				
23 Foley	Severe: wetness, percs slowly.	Severe: wetness, excess sodium, percs slowly.	Severe: wetness, percs slowly, excess sodium.	Severe: wetness.
24, 25 Forbing	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Severe: erodes easily.
26 Gladewater	Severe: flooding, wetness, percs slowly.	Severe: wetness, too clayey, percs slowly.	Severe: too clayey, wetness, flooding.	Severe: wetness, too clayey.
27 Gore	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Severe: erodes easily.
28 Gore	Severe: percs slowly.	Severe: percs slowly.	Severe: slope, percs slowly.	Severe: erodes easily.
29 Guyton	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.
30 Harleston	Moderate: wetness.	Moderate: wetness.	Moderate: slope, wetness.	Slight.
31, 32 Houston	Severe: percs slowly, too clayey.	Severe: too clayey, percs slowly.	Severe: too clayey, percs slowly.	Severe: too clayey.
33, 34 Kamie	Slight	Slight	Moderate: slope.	Slight.
35 Kamie	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
36 Kiomatia	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.
37 Kipling	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness.	Moderate: wetness.
38 Latanier	Severe: wetness, percs slowly.	Severe: too clayey, percs slowly.	Severe: too clayey, wetness, percs slowly.	Severe: too clayey.
39 Latonia	Slight	Slight	Moderate: slope.	Slight.
40 Louin	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.
41 McKamie	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Severe: erodes easily.
42 McKamie	Severe: percs slowly.	Severe: percs slowly.	Severe: slope, percs slowly.	Severe: erodes easily.

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails
43 Midland	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.
44 Morse	Severe: percs slowly, too clayey.	Severe: too clayey, percs slowly.	Severe: slope, too clayey, percs slowly.	Severe: too clayey, erodes easily.
45, 46 Muskogee	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Slight.
47 Oklared	Severe: flooding.	Slight	Slight	Slight.
48 Oklared	Severe: flooding.	Slight	Moderate: flooding.	Slight.
49 Oktibbeha	Severe: percs slowly.	Severe: percs slowly.	Severe: slope, percs slowly.	Slight.
50 Oktibbeha	Severe: percs slowly.	Severe: percs slowly.	Severe: slope, percs slowly.	Severe: erodes easily.
51 Ouachita	Severe: flooding.	Moderate: percs slowly.	Moderate: flooding, percs slowly.	Slight.
52:*				
Ouachita	Severe: flooding.	Moderate: percs slowly.	Moderate: flooding, percs slowly.	Slight.
Ochlockonee	Severe: flooding.	Slight	Moderate: flooding.	Slight.
53 Perry	Severe: wetness, percs slowly, too clayey.	Severe: wetness, too clayey, percs slowly.	Severe: too clayey, wetness, percs slowly.	Severe: wetness, too clayey.
54 Perry	Severe: flooding, wetness, percs slowly.	Severe: wetness, too clayey, percs slowly.	Severe: too clayey, wetness, flooding.	Severe: wetness, too clayey.
55 Rilla	Slight	Slight	Slight	Slight.
56 Rilla	Slight	Slight	Moderate: slope.	Slight.
57 Ruston	Slight	Slight	Moderate: slope.	Slight.
58, 59 Sacul	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight.
60 Sacul	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight.

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails
61-------------------- Sacul	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.
62-------------------- Sacul	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
63:*				
Sacul-----------------	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight.
Urban land.				
64, 65---------------- Saffell	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Slight.
66-------------------- Saffell	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight.
67-------------------- Sardis	Severe: flooding, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.
68-------------------- Sardis	Severe: flooding, wetness.	Moderate: flooding, wetness.	Severe: wetness, flooding.	Moderate: wetness, flooding.
69, 70---------------- Sawyer	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Slight.
71, 72---------------- Severn	Severe: flooding.	Slight---------------	Slight---------------	Slight.
73-------------------- Severn	Severe: flooding.	Slight---------------	Moderate: flooding.	Slight.
74-------------------- Smithdale	Slight---------------	Slight---------------	Severe: slope.	Slight.
75-------------------- Smithton	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
76-------------------- Sumter	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Severe: erodes easily.
77-------------------- Trinity	Severe: flooding, wetness, percs slowly.	Severe: wetness, too clayey, percs slowly.	Severe: too clayey, wetness.	Severe: wetness, too clayey.
78*. Udorthents				
79-------------------- Woden	Slight---------------	Slight---------------	Slight---------------	Slight.
80-------------------- Woden	Slight---------------	Slight---------------	Moderate: slope.	Slight.
81-------------------- Woden	Slight---------------	Slight---------------	Moderate: slope.	Slight.

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails
82: Wrightsville	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.
83: Yorktown	Severe: flooding, ponding, percs slowly.	Severe: ponding, too clayey, excess humus.	Severe: too clayey, excess humus, ponding.	Severe: ponding, too clayey, excess humus.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 8.--WILDLIFE HABITAT

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not not rated]

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
1-----------------Acadia	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
2-----------------Adaton	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
3-----------------Amy	Poor	Fair	Fair	Good	Fair	Good	Good	Fair	Good	Good.
4-----------------Amy	Poor	Fair	Fair	Good	Fair	Good	Fair	Fair	Good	Fair.
5, 6, 7------------Billyhaw	Fair	Fair	Fair	Good	Poor	Fair	Fair	Fair	Good	Fair.
8-----------------Billyhaw	Poor	Fair	Fair	Good	Poor	Fair	Fair	Fair	Good	Fair.
9, 10--------------Bowie	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
11----------------Briley	Poor	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Poor.
12----------------Briley	Poor	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
13----------------Briley	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
14----------------Caspiana	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor.
15----------------Catalpa	Fair	Fair	Fair	Good	---	Fair	Fair	Fair	Good	Fair.
16----------------Demopolis	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
17----------------Eylau	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
18----------------Eylau	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
19:*										
Eylau-------------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Urban land.										
20:*										
Eylau-------------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Urban land.										
21----------------Felker	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
22*. Fluvaquents										

See footnote at end of table.

TABLE 8.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
23 Foley	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
24 Forbing	Fair	Good	Good	---	Fair	Poor	Poor	Fair	Fair	Poor.
25 Forbing	Fair	Good	Good	---	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
26 Gladewater	Poor	Fair	Fair	Fair	---	Poor	Good	Fair	Fair	Fair.
27 Gore	Fair	Good	Good	---	Fair	Poor	Poor	Good	Fair	Poor.
28 Gore	Poor	Good	Good	---	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
29 Guyton	Poor	Fair	Fair	Fair	---	Good	Good	Poor	Fair	Good.
30 Harleston	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
31, 32 Houston	Fair	Fair	Fair	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
33, 34 Kamie	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
35 Kamie	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
36 Kiomatia	Poor	Fair	Fair	Fair	---	Poor	Very poor.	Fair	Fair	Very poor.
37 Kipling	Fair	Good	Good	Good	---	Poor	Poor	Good	Good	Poor.
38 Latanier	Fair	Fair	Fair	Good	---	Good	Good	Fair	Good	Good.
39 Latonia	Good	Good	Good	Good	Poor	Very poor.	Very poor.	Good	Good	Very poor.
40 Louin	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
41, 42 McKamie	Fair	Good	Good	---	Fair	Very poor.	Very poor.	Good	Fair	Very poor.
43 Midland	Poor	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good.
44 Morse	Poor	Fair	Fair	Fair	---	Poor	Very poor.	Fair	Fair	Very poor.
45 Muskogee	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
46 Muskogee	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
47, 48 Oklared	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.

See footnote at end of table.

TABLE 8.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
49, 50: Oktibbeha	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
51: Ouachita	Good	Good	Good	Good	Good	Fair	Poor	Good	Good	Fair.
52:*										
Ouachita	Good	Good	Good	Good	Good	Fair	Poor	Good	Good	Fair.
Ochlockonee	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
53: Perry	Fair	Fair	Fair	Good	---	Good	Good	Fair	Good	Good.
54: Perry	Poor	Fair	Fair	Fair	---	Fair	Fair	Fair	Fair	Fair.
55, 56: Rilla	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
57: Ruston	Good	Good	Good	---	Good	Poor	Very poor.	Good	Good	Very poor.
58: Sacul	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
59, 60: Sacul	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
61: Sacul	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
62: Sacul	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
63:*										
Sacul	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Urban land.										
64, 65, 66: Saffell	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
67: Sardis	Fair	Good	Good	Good	---	Fair	Fair	Good	Good	Fair.
68: Sardis	Poor	Fair	Fair	Good	---	Fair	Fair	Fair	Good	Fair.
69: Sawyer	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
70: Sawyer	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
71, 72: Severn	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
73: Severn	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
74: Smithdale	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

See footnote at end of table.

TABLE 8.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
75: Smithton	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
76: Sumter	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
77: Trinity	Fair	Good	Fair	Good	---	Fair	Fair	Fair	Good	Fair.
78*. Udorthents										
79, 80, 81: Woden	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
82: Wrightsville	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
83: Yorktown	Very poor.	Very poor.	Very poor.	Poor	Poor	Poor	Good	Very poor.	Very poor.	Fair.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation]

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
1----------------- Acadia	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: low strength, wetness, shrink-swell.
2----------------- Adaton	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
3----------------- Amy	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.
4----------------- Amy	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.
5, 6-------------- Billyhaw	Severe: cutbanks cave, wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: low strength, shrink-swell.
7, 8-------------- Billyhaw	Severe: cutbanks cave, wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: low strength, flooding, shrink-swell.
9----------------- Bowie	Slight-----------	Slight-----------	Slight-----------	Slight------------	Slight.
10---------------- Bowie	Slight-----------	Slight-----------	Slight-----------	Moderate: slope.	Slight.
11---------------- Briley	Severe: cutbanks cave.	Slight-----------	Slight-----------	Slight------------	Slight.
12---------------- Briley	Severe: cutbanks cave.	Slight-----------	Slight-----------	Moderate: slope.	Slight.
13---------------- Briley	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
14---------------- Caspiana	Moderate: wetness.	Moderate: shrink-swell.	Moderate: wetness.	Moderate: shrink-swell.	Severe: low strength.
15---------------- Catalpa	Severe: wetness.	Severe: flooding, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, shrink-swell.	Severe: low strength, shrink-swell.
16---------------- Demopolis	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope.
17---------------- Eylau	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: low strength, wetness.
18---------------- Eylau	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Moderate: low strength, wetness.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
19:*					
Eylau	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: low strength, wetness.
Urban land.					
20:*					
Eylau	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Moderate: low strength, wetness.
Urban land.					
21 Felker	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Moderate: low strength, wetness, shrink-swell.
22*. Fluvaquents					
23 Foley	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.
24, 25 Forbing	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.
26 Gladewater	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: low strength, wetness, flooding.
27, 28 Gore	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.
29 Guyton	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.
30 Harleston	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
31, 32 Houston	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.
33 Kamie	Slight	Slight	Slight	Slight	Moderate: low strength.
34 Kamie	Slight	Slight	Slight	Moderate: slope.	Moderate: low strength.
35 Kamie	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.
36 Kiomatia	Severe: flooding, cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
37 Kipling	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
38---------------- Latanier	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: low strength, shrink-swell.
39---------------- Latonia	Severe: cutbanks cave.	Slight-----------	Slight-----------	Slight-----------	Slight.
40---------------- Louin	Severe: cutbanks cave, wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.
41---------------- McKamie	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.
42---------------- McKamie	Moderate: too clayey, slope.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell.
43---------------- Midland	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: low strength, wetness, shrink-swell.
44---------------- Morse	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.
45, 46------------ Muskogee	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: low strength, shrink-swell.
47---------------- Oklared	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
48---------------- Oklared	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
49---------------- Oktibbeha	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.
50---------------- Oktibbeha	Moderate: too clayey, slope.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell.
51---------------- Ouachita	Moderate: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: low strength, flooding.
52:*					
Ouachita----------	Moderate: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: low strength, flooding.
Ochlockonee------	Moderate: wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
53---------------- Perry	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: low strength, wetness, shrink-swell.
54---------------- Perry	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: low strength, wetness, flooding.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
55, 56 Rilla	Moderate: too clayey, wetness.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.
57 Ruston	Slight	Slight	Slight	Slight	Moderate: low strength.
58, 59 Sacul	Moderate: too clayey, wetness.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.
60 Sacul	Moderate: too clayey, slope, wetness.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell.
61, 62 Sacul	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.
63:*					
Sacul	Moderate: too clayey, wetness.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.
Urban land.					
64 Saffell	Severe: cutbanks cave.	Slight	Slight	Slight	Slight.
65 Saffell	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight.
66 Saffell	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
67, 68 Sardis	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, flooding.
69 Sawyer	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.
70 Sawyer	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.
71, 72 Severn	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
73 Severn	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
74 Smithdale	Slight	Slight	Slight	Moderate: slope.	Slight.
75 Smithton	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
76 Sumter	Moderate: depth to rock, too clayey, slope.	Severe: shrink-swell.	Moderate: depth to rock, slope.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
77: Trinity	Severe: cutbanks cave, wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: low strength, wetness, flooding.
78*. Udorthents					
79, 80: Woden	Slight	Slight	Slight	Slight	Slight.
81: Woden	Slight	Slight	Slight	Moderate: slope.	Slight.
82: Wrightsville	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: low strength, wetness, shrink-swell.
83: Yorktown	Severe: ponding.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: low strength, ponding, flooding.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation]

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1 Acadia	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness. wetness.	Poor: too clayey, hard to pack, wetness.
2 Adaton	Severe: percs slowly, wetness.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: wetness, too clayey, hard to pack.
3 Amy	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
4 Amy	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
5, 6 Billyhaw	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
7, 8 Billyhaw	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
9, 10 Bowie	Severe: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
11, 12 Briley	Slight	Moderate: seepage, slope.	Slight	Severe: seepage.	Good.
13 Briley	Moderate: slope.	Severe: slope.	Moderate: slope.	Severe: seepage.	Fair: slope.
14 Caspiana	Moderate: wetness, percs slowly.	Moderate: seepage, wetness.	Severe: wetness.	Moderate: wetness.	Fair: too clayey.
15 Catalpa	Severe: wetness, percs slowly.	Severe: wetness,	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack.
16 Demopolis	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
17, 18 Eylau	Severe: wetness, percs slowly.	Severe: wetness.	Moderate: wetness, too clayey.	Moderate: wetness.	Fair: too clayey,
19,* 20:* Eylau	Severe: wetness, percs slowly.	Severe: wetness.	Moderate: wetness, too clayey.	Moderate: wetness.	Fair: too clayey, wetness.
Urban land.					

See footnote at end of table.

TABLE 10.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary	Daily cover for landfill
21 Felker	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
22*. Fluvaquents					
23 Foley	Severe: wetness, percs slowly.	Slight	Severe: wetness, excess sodium.	Severe: wetness.	Poor: hard to pack, wetness, excess sodium.
24, 25 Forbing	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
26 Gladewater	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
27, 28 Gore	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
29 Guyton	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
30 Harleston	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
31, 32 Houston	Severe: percs slowly,	Moderate: depth to rock, slope.	Severe: depth to rock, wetness, too clayey.	Moderate: depth to rock, wetness.	Poor: too clayey, hard to pack.
33, 34 Kamie	Moderate: percs slowly.	Severe: seepage.	Moderate: too clayey.	Severe: seepage.	Fair: too clayey.
35 Kamie	Moderate: percs slowly, slope.	Severe: seepage, slope.	Moderate: slope, too clayey.	Severe: seepage.	Fair: too clayey, slope.
36 Kiomatia	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: too sandy.
37 Kipling	Severe: wetness, percs slowly.	Moderate: slope.	Severe: too clayey, wetness.	Moderate: wetness.	Poor: too clayey, hard to pack.
38 Latanier	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
39 Latonia	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
40 Louin	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.

See footnote at end of table.

TABLE 10.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
41 McKamie	Severe: percs slowly.	Moderate: seepage, slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
42 McKamie	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
43 Midland	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
44 Morse	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
45, 46 Muskogee	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
47 Oklared	Moderate: wetness.	Severe: seepage, flooding.	Severe: seepage, wetness.	Severe: seepage.	Good.
48 Oklared	Severe: flooding.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Good.
49 Oktibbeha	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
50 Oktibbeha	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
51 Ouachita	Severe: flooding, percs slowly.	Severe: flooding,	Severe: flooding, seepage.	Severe: flooding.	Fair: too clayey.
52:*					
Ouachita	Severe: flooding, percs slowly.	Severe: flooding.	Severe: flooding, seepage.	Severe: flooding.	Fair: too clayey.
Ochlockonee	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Fair: wetness.
53 Perry	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
54 Perry	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness,	Poor: too clayey, hard to pack, wetness.
55 Rilla	Moderate: percs slowly.	Moderate: seepage.	Moderate: too clayey.	Slight	Fair: too clayey.

See footnote at end of table.

TABLE 10.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
56 Rilla	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey.
57 Ruston	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey.
58, 59 Sacul	Severe: percs slowly, wetness.	Severe: wetness.	Severe: too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
60 Sacul	Severe: percs slowly, wetness.	Severe: slope, wetness.	Severe: too clayey.	Moderate: slope, wetness.	Poor: too clayey, hard to pack.
61, 62 Sacul	Severe: percs slowly, slope, wetness.	Severe: slope, wetness.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
63:*					
Sacul	Severe: percs slowly, wetness.	Severe: wetness.	Severe: too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
Urban land.					
64, 65 Saffell	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Slight	Poor: small stones.
66 Saffell	Moderate: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage.	Moderate: slope.	Poor: small stones.
67, 68 Sardis	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding,	Poor: wetness.
69, 70 Sawyer	Severe: wetness, percs slowly.	Moderate: slope.	Severe: too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
71, 72 Severn	Moderate: flooding.	Severe: seepage, flooding.	Severe: seepage.	Severe: seepage.	Good.
73 Severn	Severe: flooding.	Severe: seepage, flooding.	Severe: flooding, seepage.	Severe: flooding, seepage.	Good.
74 Smithdale	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too clayey.
75 Smithton	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
76 Sumter	Severe: depth to rock, percs slowly.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim, hard to pack.
77 Trinity	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.

See footnote at end of table.

TABLE 10.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
78*. Udorthents					
79, 80, 81 Woden	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.
82 Wrightsville	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
83 Yorktown	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: too clayey, hard to pack, ponding.

*See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," "poor," "probable," and "improbable." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation]

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
1: Acadia	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, wetness.
2: Adaton	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, thin layer.
3, 4: Amy	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
5, 6, 7, 8: Billyhaw	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
9, 10: Bowie	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer.
11, 12: Briley	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
13: Briley	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, slope.
14: Caspiana	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
15: Catalpa	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
16: Demopolis	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
17, 18: Eylau	Fair: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
19,* 20:*				
Eylau	Fair: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
Urban land.				
21: Felker	Fair: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Good.
22*. Fluvaquents				
23: Foley	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, excess sodium.
24, 25: Forbing	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.

See footnote at end of table.

TABLE 11.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
26------------------- Gladewater	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
27, 28--------------- Gore	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
29------------------- Guyton	Poor: wetness. low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
30------------------- Harleston	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer.
31, 32--------------- Houston	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
33, 34--------------- Kamie	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
35------------------- Kamie	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope.
36------------------- Kiomatia	Good----------------	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
37------------------- Kipling	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
38------------------- Latanier	Fair: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
39------------------- Latonia	Good----------------	Probable------------	Improbable: too sandy.	Fair: too sandy, small stones, thin layer.
40------------------- Louin	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
41, 42--------------- McKamie	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
43------------------- Midland	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, wetness.
44------------------- Morse	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
45, 46--------------- Muskogee	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer.
47, 48--------------- Oklared	Good----------------	Improbable: excess fines.	Improbable: excess fines.	Good.

See footnote at end of table.

TABLE 11.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
49, 50: Oktibbeha	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
51: Ouachita	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
52:*				
Ouachita	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
Ochlockonee	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
53, 54: Perry	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
55, 56: Rilla	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer.
57: Ruston	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer.
58, 59, 60: Sacul	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
61: Sacul	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
62: Sacul	Poor: low strength, slope, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
63:*				
Sacul	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Urban land.				
64, 65, 66: Saffell	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
67, 68: Sardis	Fair: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
69, 70: Sawyer	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer.
71, 72, 73: Severn	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
74: Smithdale	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer.
75: Smithton	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
76: Sumter	Poor: area reclaim, low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, too clayey.

See footnote at end of table.

TABLE 11.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
77: Trinity	Poor: wetness, low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
78*. Udorthents				
79, 80, 81: Woden	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
82: Wrightsville	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, wetness.
83: Yorktown	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation]

Map symbol and soil name	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Features affecting-- Drainage	Features affecting-- Irrigation	Features affecting-- Terraces and diversions	Features affecting-- Grassed waterways
1 Acadia	Slight	Severe: hard to pack, wetness.	Percs slowly	Wetness, percs slowly.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
2 Adaton	Slight	Severe: wetness.	Percs slowly	Wetness, percs slowly.	Percs slowly, wetness.	Wetness, percs slowly.
3 Amy	Moderate: seepage.	Severe: wetness.	Percs slowly	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, percs slowly.
4 Amy	Moderate: seepage.	Severe: wetness.	Percs slowly, flooding.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, percs slowly.
5, 6 Billyhaw	Slight	Severe: hard to pack, wetness.	Percs slowly	Wetness, slow intake, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
7, 8 Billyhaw	Slight	Severe: hard to pack, wetness.	Percs slowly, flooding.	Wetness, slow intake, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
9 Bowie	Moderate: seepage.	Moderate: piping.	Deep to water	Favorable	Favorable	Favorable.
10 Bowie	Moderate: seepage.	Moderate: piping.	Deep to water	Slope	Favorable	Favorable.
11 Briley	Moderate: seepage.	Moderate: piping.	Deep to water	Droughty, fast intake.	Favorable	Droughty.
12 Briley	Moderate: seepage.	Moderate: piping.	Deep to water	Droughty, fast intake, slope.	Favorable	Droughty.
13 Briley	Moderate: seepage.	Moderate: piping.	Deep to water	Droughty, fast intake, slope.	Slope	Droughty, slope.
14 Caspiana	Moderate: seepage.	Severe: piping.	Deep to water	Erodes easily	Erodes easily	Favorable.
15 Catalpa	Slight	Severe: hard to pack, wetness.	Percs slowly, flooding.	Wetness, slow intake, percs slowly.	Wetness, percs slowly.	Percs slowly.
16 Demopolis	Severe: depth to rock.	Severe: thin layer.	Deep to water	Depth to rock, slope, erodes easily.	Slope, depth to rock, erodes easily.	Slope, erodes easily, depth to rock.
17 Eylau	Moderate: seepage.	Moderate: wetness, piping.	Favorable	Wetness	Wetness, erodes easily.	Erodes easily.
18 Eylau	Moderate: seepage.	Moderate: wetness, piping.	Slope	Wetness, slope.	Wetness, erodes easily.	Erodes easily.
19:*						
Eylau	Moderate: seepage.	Moderate: wetness, piping.	Favorable	Wetness	Wetness, erodes easily.	Erodes easily.
Urban land.						

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Features affecting-- Drainage	Features affecting-- Irrigation	Features affecting-- Terraces and diversions	Features affecting-- Grassed waterways
20:*						
Eylau	Moderate: seepage.	Moderate: wetness, piping.	Slope	Wetness, slope.	Wetness, erodes easily.	Erodes easily.
Urban land.						
21 Felker	Slight	Severe: piping.	Favorable	Wetness, erodes easily.	Erodes easily, wetness.	Favorable.
22*. Fluvaquents						
23 Foley	Slight	Severe: wetness, excess sodium.	Percs slowly, excess sodium.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, excess sodium, erodes easily.
24 Forbing	Slight	Severe: hard to pack.	Deep to water	Percs slowly, erodes easily.	Erodes easily, percs slowly.	Erodes easily, percs slowly.
25 Forbing	Slight	Severe: hard to pack.	Deep to water	Percs slowly, slope, erodes easily.	Erodes easily, percs slowly.	Erodes easily, percs slowly.
26 Gladewater	Slight	Severe: hard to pack, wetness.	Percs slowly, flooding.	Wetness, slow intake, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
27 Gore	Slight	Moderate: thin layer, hard to pack.	Deep to water	Percs slowly, rooting depth.	Erodes easily, percs slowly.	Erodes easily, rooting depth.
28 Gore	Slight	Moderate: thin layer, hard to pack.	Deep to water	Percs slowly, rooting depth, slope.	Erodes easily, percs slowly.	Erodes easily, rooting depth.
29 Guyton	Moderate: seepage.	Severe: piping, wetness.	Percs slowly, flooding.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, percs slowly.
30 Harleston	Moderate: seepage.	Severe: piping.	Favorable	Wetness	Wetness	Favorable.
31 Houston	Moderate: depth to rock.	Severe: hard to pack.	Deep to water	Slow intake, percs slowly.	Erodes easily, percs slowly.	Erodes easily, percs slowly.
32 Houston	Moderate: depth to rock.	Severe: hard to pack.	Deep to water	Slow intake, percs slowly, slope.	Erodes easily, percs slowly.	Erodes easily, percs slowly.
33 Kamie	Moderate: seepage.	Severe: piping.	Deep to water	Favorable	Favorable	Favorable.
34 Kamie	Moderate: seepage.	Severe: piping.	Deep to water	Favorable	Favorable	Favorable.
35 Kamie	Moderate: slope, seepage.	Severe: piping.	Deep to water	Favorable	Slope	Slope.
36 Kiomatia	Severe: seepage.	Severe: seepage, piping.	Deep to water	Flooding, droughty.	Too sandy	Droughty.
37 Kipling	Slight	Severe: hard to pack.	Percs slowly, slope.	Wetness, percs slowly, slope.	Percs slowly	Percs slowly.

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
38----------------- Latanier	Moderate: seepage.	Severe: piping, wetness.	Percs slowly---	Wetness, slow intake, percs slowly.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
39----------------- Latonia	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, slope.	Too sandy-------	Droughty.
40----------------- Louin	Slight----------	Severe: hard to pack, wetness.	Percs slowly---	Wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
41----------------- McKamie	Moderate: seepage.	Moderate: thin layer, hard to pack.	Deep to water	Percs slowly, rooting depth, slope.	Erodes easily, percs slowly.	Erodes easily, rooting depth.
42----------------- McKamie	Moderate: slope, seepage.	Moderate: thin layer, hard to pack.	Deep to water	Percs slowly, rooting depth, slope.	Slope, erodes easily, percs slowly.	Slope, erodes easily, rooting depth.
43----------------- Midland	Slight----------	Severe: wetness.	Percs slowly---	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, percs slowly.
44----------------- Morse	Slight----------	Severe: hard to pack.	Deep to water	Slow intake, percs slowly, slope.	Erodes easily, percs slowly.	Erodes easily, percs slowly.
45----------------- Muskogee	Slight----------	Moderate: hard to pack, wetness.	Percs slowly---	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
46----------------- Muskogee	Slight----------	Moderate: hard to pack, wetness.	Percs slowly, slope.	Wetness, percs slowly, slope.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
47----------------- Oklared	Severe: seepage.	Severe: piping.	Deep to water	Favorable-------	Favorable-------	Favorable.
48----------------- Oklared	Severe: seepage.	Severe: piping.	Deep to water	Flooding--------	Favorable-------	Favorable.
49----------------- Oktibbeha	Slight----------	Moderate: hard to pack.	Deep to water	Percs slowly, slope, erodes easily.	Erodes easily, percs slowly.	Erodes easily, percs slowly.
50----------------- Oktibbeha	Moderate: slope.	Moderate: hard to pack.	Deep to water	Percs slowly, slope, erodes easily.	Slope, erodes easily, percs slowly.	Slope, erodes easily, percs slowly.
51----------------- Ouachita	Moderate: seepage.	Severe: piping.	Deep to water	Erodes easily, flooding.	Erodes easily	Percs slowly.
52:* Ouachita----------	Moderate: seepage.	Severe: piping.	Deep to water	Erodes easily, flooding.	Erodes easily	Percs slowly.
Ochlockonee-------	Severe: seepage.	Severe: piping.	Deep to water	Flooding--------	Favorable-------	Favorable.
53----------------- Perry	Slight----------	Severe: hard to pack, wetness.	Percs slowly---	Wetness, slow intake, percs slowly.	Wetness, percs slowly.	Wetness, rooting depth, percs slowly.
54----------------- Perry	Slight----------	Severe: hard to pack, wetness.	Percs slowly, flooding.	Wetness, slow intake, percs slowly.	Wetness, percs slowly.	Wetness, rooting depth, percs slowly.
55, 56------------- Rilla	Moderate: seepage.	Severe: thin layer.	Deep to water	Erodes easily	Erodes easily	Erodes easily.

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
57----------------- Ruston	Moderate: seepage.	Severe: thin layer.	Deep to water	Favorable-------	Favorable	Favorable.
58----------------- Sacul	Slight----------	Severe: hard to pack.	Deep to water	Percs slowly, wetness.	Percs slowly, wetness.	Percs slowly.
59----------------- Sacul	Slight----------	Severe: hard to pack.	Deep to water	Slope, percs slowly, wetness.	Percs slowly, wetness.	Percs slowly.
60, 61------------- Sacul	Moderate: slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly, wetness.	Slope, percs slowly, wetness.	Slope, percs slowly.
62----------------- Sacul	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly, wetness.	Slope, percs slowly, wetness.	Slope, percs slowly.
63:*						
Sacul-------------	Slight----------	Severe: hard to pack.	Deep to water	Slope, percs slowly, wetness.	Percs slowly, wetness.	Percs slowly.
Urban land.						
64----------------- Saffell	Severe: seepage.	Slight----------	Deep to water	Droughty--------	Favorable------	Droughty.
65----------------- Saffell	Severe: seepage.	Slight----------	Deep to water	Droughty, slope.	Favorable------	Droughty.
66----------------- Saffell	Severe: seepage.	Slight----------	Deep to water	Droughty, slope.	Slope-----------	Slope, droughty.
67, 68------------- Sardis	Moderate: seepage.	Severe: piping, wetness.	Flooding--------	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Wetness, erodes easily.
69----------------- Sawyer	Slight----------	Severe: hard to pack.	Percs slowly---	Wetness, wetness, percs slowly.	Erodes easily wetness.	Erodes easily. percs slowly.
70----------------- Sawyer	Slight----------	Severe: hard to pack.	Percs slowly, slope.	Wetness, percs slowly, slope.	Erodes easily, wetness, percs slowly.	Erodes easily, percs slowly.
71, 72------------- Severn	Severe: seepage.	Severe: piping.	Deep to water	Favorable-------	Favorable------	Favorable.
73----------------- Severn	Severe: seepage.	Severe: piping.	Deep to water	Flooding--------	Favorable------	Favorable.
74----------------- Smithdale	Severe: seepage.	Severe: piping.	Deep to water	Slope-----------	Favorable------	Favorable.
75----------------- Smithton	Slight----------	Severe: piping, wetness.	Favorable------	Wetness---------	Wetness---------	Wetness.
76----------------- Sumter	Moderate: slope.	Moderate: hard to pack.	Deep to water	Percs slowly, depth to rock.	Slope, depth to rock, erodes easily.	Slope, erodes easily, depth to rock.
77----------------- Trinity	Slight----------	Severe: hard to pack, wetness.	Percs slowly, flooding.	Wetness, slow intake, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
78*. Udorthents						

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
79, 80, 81 Woden	Severe: seepage.	Severe: piping.	Deep to water	Favorable	Favorable	Favorable.
82 Wrightsville	Slight	Severe: hard to pack, wetness.	Percs slowly	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, percs slowly.
83 Yorktown	Slight	Severe: hard to pack, ponding.	Ponding, percs slowly, flooding.	Ponding, slow intake, percs slowly.	Ponding, percs slowly.	Wetness, percs slowly.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--ENGINEERING INDEX PROPERTIES

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated]

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
1----------------- Acadia	0-4	Silt loam---------	ML, CL-ML	A-4	0	100	100	95-100	85-100	<30	NP-7
	4-20	Silt loam, silty clay loam.	CL	A-6	0	100	100	95-100	85-100	30-40	11-18
	20-50	Clay, silty clay	CH, CL	A-7	0	100	100	95-100	90-100	42-70	20-43
	50-72	Clay, silty clay, silty clay loam.	CH, CL	A-7, A-6	0	100	100	95-100	85-100	35-65	15-38
2----------------- Adaton	0-7	Silt loam---------	ML, CL, CL-ML	A-4	0	100	98-100	90-100	84-100	<30	NP-10
	7-72	Silt loam, silty clay loam, silty clay.	CL, CH	A-6, A-7	0	100	98-100	95-100	84-100	30-52	11-30
3, 4-------------- Amy	0-10	Silt loam---------	ML, ML-CL	A-4	0	100	95-100	90-100	70-95	<30	NP-5
	10-66	Silt loam, silty clay loam.	CL	A-4, A-6	0	100	95-100	95-100	85-95	25-40	8-20
	66-90	Fine sandy loam, silt loam, silty clay loam.	ML, SM, CL-ML, CL	A-4, A-6	0	100	95-100	80-95	40-90	<35	NP-20
5, 6, 7, 8------- Billyhaw	0-26	Clay--------------	CH	A-7	0	98-100	98-100	95-100	95-100	55-80	35-55
	26-72	Clay--------------	CH	A-7	0	98-100	95-100	95-100	95-100	60-85	35-55
9, 10------------- Bowie	0-14	Fine sandy loam	SM, SM-SC, ML	A-2 A-4	0	98-100	98-100	95-100	30-55	<25	NP-6
	14-40	Sandy clay loam, clay loam, fine sandy loam.	SC, CL	A-4, A-6	0	90-100	90-100	85-100	40-72	20-40	8-25
	40-72	Sandy clay loam, clay loam, fine sandy loam.	SC, CL	A-4, A-6, A-7	0	80-100	70-100	65-100	36-77	20-48	8-30
11, 12, 13------- Briley	0-23	Loamy fine sand	SM	A-2, A-4	0	97-100	95-100	80-100	17-45	<25	NP-4
	23-72	Fine sandy loam, sandy clay loam, loam.	SC, CL	A-4, A-6	0	95-100	95-100	85-100	36-65	22-39	8-22
14---------------- Caspiana	0-18	Silt loam---------	CL-ML, ML	A-4	0	100	100	100	85-100	<27	NP-7
	18-45	Silty clay loam, silt loam.	CL, CL-ML	A-6, A-7, A-4	0	100	100	100	85-100	23-43	4-20
	45-72	Silt loam, very fine sandy loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	100	100	100	80-100	23-37	4-15
15---------------- Catalpa	0-14	Silty clay--------	CL, CH	A-7	0	100	100	95-100	85-100	45-52	24-30
	14-72	Silty clay, silty clay loam.	CH	A-7	0	100	100	95-100	85-100	50-75	28-50
16---------------- Demopolis	0-6	Silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	85-100	75-90	65-85	50-80	24-44	6-20
	6-14	Loam, clay loam, silty clay loam.	GC, GM-GC, GP-GC	A-2, A-1	0	20-30	15-25	10-20	8-15	18-38	4-14
	14-18	Weathered bedrock	---	---	---	---	---	---	---	---	---
17, 18----------- Eylau	0-6	Fine sandy loam	SM, SM-SC, CL-ML, ML	A-4	0	100	100	75-100	40-65	<25	NP-6
	6-39	Sandy clay loam, clay loam, silty clay loam.	CL	A-4, A-6	0	100	100	85-100	51-80	25-40	8-20
	39-72	Sandy clay loam, clay loam, loam.	CL, SC	A-4, A-6, A-7	0	100	100	85-100	45-65	25-45	8-25

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
19,* 20:* Eylau	0-6	Fine sandy loam	SM, SM-SC, CL-ML, ML	A-4	0	100	100	75-100	40-65	<25	NP-6
	6-39	Sandy clay loam, clay loam, silty clay loam.	CL	A-4, A-6	0	100	100	85-100	51-80	25-40	8-20
	39-72	Sandy clay loam, clay loam, loam.	CL, SC	A-4, A-6, A-7	0	100	100	85-100	45-65	25-45	8-25
Urban land.											
21 Felker	0-9	Silt loam	CL, ML, CL-ML	A-4	0	100	100	94-100	55-85	<30	NP-10
	9-72	Silt loam, loam, silty clay loam.	CL	A-4, A-6	0	100	100	90-100	60-90	26-39	7-18
22*. Fluvaquents											
23 Foley	0-8	Silt loam	CL, CL-ML	A-4, A-6, A-7	0	100	100	95-100	70-100	25-45	5-20
	8-17	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	100	95-100	90-100	30-49	11-25
	17-80	Silty clay loam, silt loam.	CL, CH	A-7	0	100	100	95-100	90-100	40-60	18-32
24, 25 Forbing	0-5	Silt loam	ML, CL-ML, CL	A-4	0	100	100	100	70-90	<30	NP-10
	5-22	Clay	CH	A-7	0	100	100	95-100	85-100	51-76	26-50
	22-51	Clay	CH	A-7	0	95-100	95-100	95-100	85-100	51-76	26-50
	51-80	Clay, silty clay	CH, CL	A-7	0	95-100	95-100	95-100	85-100	45-76	22-49
26 Gladewater	0-7	Clay	CH, CL	A-7	0	100	100	90-100	80-95	48-75	25-50
	7-72	Clay	CH	A-7	0	100	100	95-100	90-100	51-75	30-50
27, 28 Gore	0-7	Silt loam	ML, CL-ML	A-4	0	100	100	95-100	60-90	<27	NP-7
	7-50	Clay, silty clay	CH	A-7	0	100	100	95-100	85-100	53-65	28-40
	50-72	Clay	CH	A-7	0	100	100	95-100	85-100	51-83	25-53
29 Guyton	0-19	Silt loam	ML, CL-ML	A-4	0	100	100	95-100	65-90	<27	NP-7
	19-60	Silt loam, silty clay loam.	CL, CL-ML	A-6, A-4	0	100	100	94-100	75-95	22-40	6-18
	60-80	Silt loam, silty clay loam.	CL, CL-ML, ML	A-6, A-4	0	100	100	95-100	51-95	<40	NP-18
30 Harleston	0-7	Fine sandy loam	ML, SM, CL-ML, SM-SC	A-2, A-4	0	90-100	85-100	60-85	30-55	<25	NP-7
	7-58	Sandy loam, loam, fine sandy loam.	SC, CL, CL-ML, SM-SC	A-2, A-4	0	90-100	85-100	60-95	30-70	20-30	5-10
	58-80	Sandy loam, loam, sandy clay loam.	SC, CL, CL-ML, SM-SC	A-2, A-4, A-6	0	90-100	85-100	60-95	30-70	20-35	5-13
31, 32 Houston	0-25	Clay	CH, MH	A-7	0	100	100	95-100	90-95	50-68	23-37
	25-41	Clay	CH, MH	A-7	0	100	100	95-100	95-98	51-75	25-43
	41-72	Clay	CH, MH	A-7	0	100	100	95-100	95-98	55-80	30-45

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag-ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct					Pct	
33, 34, 35 Kamie	0-11	Fine sandy loam	SM, ML, SC, CL	A-4	0	100	98-100	94-100	36-60	<30	NP-10
	11-80	Sandy clay loam, clay loam.	CL, SC, CL-ML, SM-SC	A-4, A-6	0	100	100	90-100	36-90	25-40	7-18
36 Kiomatia	0-7	Loamy fine sand	SM, SM-SC	A-4, A-2	0	100	95-100	80-100	30-45	<26	NP-7
	7-60	Stratified fine sand to loam.	SM, SM-SC	A-2	0	100	95-100	85-90	13-30	<22	NP-5
37 Kipling	0-3	Silt loam	CL, ML, CL-ML	A-6, A-4, A-7	0	100	100	90-100	70-95	20-45	3-25
	3-42	Silty clay, clay, silty clay loam.	CH, CL	A-7, A-6	0	100	100	95-100	85-95	38-70	22-45
	42-80	Clay, silty clay	CH, CL	A-7	0	100	100	90-100	75-95	48-80	26-50
38 Latanier	0-4	Clay	CH	A-7	0	100	100	100	95-100	51-75	26-45
	4-29	Clay, silty clay	CH	A-7	0	100	100	100	95-100	51-75	26-45
	29-82	Silt loam, very fine sandy loam, fine sandy loam.	CL-ML, CL, ML	A-4, A-6	0	100	100	100	80-100	<40	NP-17
39 Latonia	0-17	Loamy fine sand	SM	A-2	0	90-100	85-100	50-80	15-35	---	NP
	17-45	Sandy loam, loam, fine sandy loam.	SM	A-2, A-4	0	90-100	85-100	60-85	30-50	---	NP
	45-72	Sand, loamy sand	SM, SP-SM	A-2	0	90-100	85-100	50-75	10-30	---	NP
40 Louin	0-9	Silty clay loam	CL	A-6, A-7	0	100	100	90-100	70-95	30-48	15-28
	9-70	Silty clay, clay	CH	A-7	0	100	100	90-100	85-95	55-75	32-50
41, 42 McKamie	0-8	Silt loam	CL, CL-ML	A-6, A-4	0	100	100	95-100	80-100	20-40	5-22
	8-38	Clay, silty clay	CH, CL	A-7	0	100	100	95-100	80-100	45-70	22-40
	38-60	Silty clay loam, silt loam, very fine sandy loam.	CL, CL-ML	A-4, A-6	0	100	94-100	88-100	50-95	20-40	5-22
43 Midland	0-7	Silty clay loam	CL	A-6, A-7	0	100	100	90-100	75-100	30-42	12-22
	7-82	Silty clay, clay, silty clay loam.	CH, CL	A-7	0	100	100	100	95-100	41-65	20-40
44 Morse	0-6	Clay	CH	A-7	0	90-100	85-100	85-100	80-100	50-75	25-45
	6-40	Clay	CH	A-7	0	90-100	85-95	85-95	80-95	55-75	30-45
	40-72	Silty clay loam, silt loam.	CL, CL-ML	A-4, A-6	0	90-100	85-95	85-95	80-95	20-40	5-22
45, 46 Muskogee	0-7	Silt loam	ML, CL, CL-ML	A-4	0	100	100	95-100	85-100	18-30	1-10
	7-32	Silty clay loam, silt loam.	CL, CH	A-6, A-7	0	100	100	95-100	90-100	35-55	15-30
	32-72	Silty clay, clay	CH	A-7	0	100	100	95-100	90-100	55-70	30-40
47, 48 Oklared	0-6	Fine sandy loam	SM, SM-SC, ML, CL-ML	A-4	0	100	98-100	94-100	36-60	<26	NP-7
	6-46	Fine sandy loam, very fine sandy loam, loam.	SM, SC, ML, CL	A-4	0	100	98-100	94-100	36-85	<30	NP-10
	46-70	Stratified fine sandy loam to loamy fine sand.	SM, SC, ML, CL	A-2, A-4	0	100	98-100	90-100	15-60	<30	NP-10
49, 50 Oktibbeha	0-9	Silt loam	ML, CL, CL-ML	A-6, A-4	0	100	95-100	85-95	60-90	20-40	4-20
	9-12	Silty clay loam	CL	A-6, A-7	0	100	95-100	95-100	90-100	35-45	15-28
	12-37	Clay	CH	A-7	0	100	95-100	95-100	95-100	55-65	30-40
	37-48	Clay, silty clay	CL	A-7	0-5	95-100	90-100	90-100	90-100	41-49	25-30

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
51---------------- Ouachita	0-18	Silt loam---------	ML, CL, CL-ML	A-4, A-6	0	100	100	85-100	75-95	<30	NP-12
	18-39	Silt loam, loam, silty clay loam.	CL, CL-ML	A-4, A-6	0	100	100	85-100	80-100	25-40	5-20
	39-72	Fine sandy loam, silt loam, loamy fine sand.	SM, ML, CL-ML, SM-SC	A-4, A-2	0	100	100	50-95	20-75	<30	NP-5
52:* Ouachita---------	0-18	Silt loam---------	ML, CL, CL-ML	A-4, A-6	0	100	100	85-100	75-95	<30	NP-12
	18-39	Silt loam, loam, silty clay loam.	CL, CL-ML	A-4, A-6	0	100	100	85-100	80-100	25-40	5-20
	39-72	Fine sandy loam, silt loam, loamy fine sand.	SM, ML, CL-ML, SM-SC	A-4, A-2	0	100	100	50-95	20-75	<30	NP-5
Ochlockonee------	0-12	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0	100	95-100	95-100	36-80	<26	NP-5
	12-72	Fine sandy loam, sandy loam, very fine sandy loam.	SM, ML, SC, CL	A-4	0	100	95-100	95-100	36-75	<32	NP-9
53, 54----------- Perry	0-5	Clay--------------	CH, CL	A-7	0	100	100	100	95-100	45-75	22-45
	5-21	Clay--------------	CH	A-7	0	100	100	100	95-100	60-80	33-50
	21-72	Clay--------------	CH, CL	A-7	0	90-100	85-100	75-100	70-100	45-80	22-50
55, 56----------- Rilla	0-7	Silt loam---------	ML, CL-ML, CL	A-4	0	100	100	100	90-100	<31	NP-10
	7-80	Silty clay loam, clay loam, silt loam.	CL	A-6, A-4	0	100	100	100	90-100	28-40	8-17
57---------------- Ruston	0-13	Fine sandy loam	SM, ML	A-4, A-2	0	85-100	78-100	65-100	36-75	<20	NP-3
	13-37	Sandy clay loam, loam, clay loam.	SC, CL	A-6	0	85-100	78-100	70-100	36-75	30-40	11-20
	37-50	Fine sandy loam, sandy loam, loamy sand.	SM, ML, CL-ML, SM-SC	A-4, A-2	0	85-100	78-100	65-100	30-75	<27	NP-7
	50-72	Sandy clay loam, fine sandy loam, clay loam.	SC, CL	A-6, A-4	0	85-100	78-100	70-100	36-75	20-42	5-20
58, 59, 60, 61, 62--------------- Sacul	0-9	Fine sandy loam	SM, ML	A-4	0	95-100	90-100	80-100	40-65	<20	NP-3
	9-42	Clay, silty clay	CH, CL	A-7	0	95-100	90-100	85-95	80-90	45-70	20-40
	42-57	Silty clay loam, silt loam, clay loam.	CL, CH, SC	A-6, A-7, A-4	0	95-100	90-100	85-100	40-90	25-55	8-32
	57-72	Stratified fine sandy loam to silty clay loam.	SM, ML, CL-ML, CL	A-4, A-6	0	95-100	90-100	85-100	40-90	20-50	3-32
63:* Sacul------------	0-9	Fine sandy loam	SM, ML	A-4	0	95-100	90-100	80-100	40-65	<20	NP-3
	9-42	Clay, silty clay	CH, CL	A-7	0	95-100	90-100	85-95	80-90	42-57	20-40
	42-57	Silty clay loam, silt loam, clay loam.	CL, CH, SC	A-6, A-7, A-4	0	95-100	90-100	85-100	40-90	25-55	8-32
	57-72	Stratified fine sandy loam to silty clay loam.	SM, ML, CL-ML, CL	A-4, A-6	0	95-100	90-100	85-100	40-90	20-50	3-32
Urban land.											

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
64, 65, 66------- Saffell	0-6	Gravelly fine sandy loam.	SM	A-1, A-2, A-4	0-5	70-80	50-75	40-65	20-40	<20	NP-3
	6-72	Very gravelly sandy clay loam, very gravelly fine sandy loam, very gravelly loam.	GC, SC, SM-SC, GM-GC	A-2, A-1	0-15	35-85	25-65	20-55	15-35	20-40	4-18
67, 68----------- Sardis	0-7	Silt loam--------	ML, CL-ML, CL	A-4	0	100	100	80-100	75-95	<30	NP-10
	7-48	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-4, A-6	0	100	100	85-100	80-100	25-40	5-20
	48-72	Silt loam, sandy loam, sandy clay loam.	ML, SM, CL, SC	A-4	0	100	95-100	60-95	35-75	<30	NP-10
69, 70----------- Sawyer	0-5	Silt loam--------	ML, CL-ML	A-4	0	100	95-100	85-95	60-90	<25	NP-7
	5-28	Silty clay loam, loam, silt loam.	CL	A-6, A-4	0	100	95-100	85-95	70-90	30-40	10-20
	28-80	Silty clay, clay	CH, CL	A-7	0	100	95-100	90-100	80-90	45-60	20-35
71, 72, 73------- Severn	0-5	Silt loam--------	ML, CL-ML, CL	A-4, A-6	0	100	100	94-100	65-97	22-31	3-12
	5-74	Stratified silt loam to loamy very fine sand.	ML, CL-ML	A-4	0	100	100	94-100	65-97	<28	NP-7
74--------------- Smithdale	0-10	Fine sandy loam	SM, SM-SC	A-4	0	100	85-100	60-80	36-49	<20	NP-5
	10-54	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-95	45-75	23-38	7-15
	54-72	Loam, fine sandy loam, sandy clay loam.	SM, ML, CL, SC	A-4	0	100	85-100	65-80	36-70	<30	NP-10
75--------------- Smithton	0-16	Fine sandy loam	ML, SM	A-2, A-4	0	95-100	95-100	60-95	30-65	---	NP
	16-54	Fine sandy loam, loam.	ML, CL-ML	A-4	0	95-100	95-100	85-95	55-80	15-25	2-7
	54-72	Fine sandy loam, loam, silt loam.	CL-ML, CL	A-4, A-6	0	95-100	95-100	90-100	60-90	20-30	5-15
76--------------- Sumter	0-7	Silty clay loam	CL	A-7, A-6	0	95-100	99-100	98-100	85-90	35-50	16-25
	7-24	Silty clay, clay, silty clay loam.	CH, CL	A-7, A-6	0	100	99-100	99-100	90-95	35-55	16-32
	24-39	Weathered chalk.	CH, CL	A-7	0	100	100	99-100	75-90	41-60	16-34
77--------------- Trinity	0-72	Clay-------------	CH	A-7	0	100	98-100	85-100	80-100	55-90	30-60
78*. Udorthents											
79, 80, 81------- Woden	0-13	Fine sandy loam	SM, ML, CL-ML, SM-SC	A-4	0	98-100	98-100	70-85	40-65	<23	NP-7
	13-78	Fine sandy loam, loam.	SM, ML, CL-ML, SM-SC	A-4	0	98-100	98-100	70-85	40-65	<23	NP-7
82--------------- Wrightsville	0-15	Silt loam--------	ML, CL, CL-ML	A-4	0	100	95-100	90-100	75-100	<31	NP-10
	15-57	Silty clay, clay, silty clay loam.	CH, CL	A-7	0	100	100	95-100	90-100	41-65	22-40
	57-62	Silty clay loam, silty clay, clay.	CL, CH	A-7, A-6	0	100	95-100	95-100	90-100	35-55	16-30

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
83----------------	0-6	Silty clay loam	CL	A-6, A-7	0	100	100	100	95-100	35-50	15-25
Yorktown	6-50	Clay--------------	CH	A-7	0	100	100	100	95-100	60-80	32-50
	50-60	Clay--------------	CH	A-7	0	100	100	95-100	90-100	60-80	32-50

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cm3	In/hr	In/in	pH				Pct
1---------------- Acadia	0-4	14-27	1.35-1.70	0.6-2.0	0.16-0.23	4.5-6.0	Low----------	0.43	4	.5-2
	4-20	20-39	1.35-1.70	0.6-2.0	0.16-0.22	4.5-6.0	Moderate-----	0.32		
	20-50	40-55	1.20-1.60	<0.06	0.15-0.18	4.5-6.0	High---------	0.32		
	50-72	30-55	1.20-1.70	<0.2	0.15-0.20	4.5-7.8	High---------	0.32		
2---------------- Adaton	0-7	10-16	1.50-1.55	0.6-2.0	0.20-0.22	4.5-5.5	Low----------	0.43	5	.5-2
	7-72	20-42	1.40-1.45	0.06-0.2	0.18-0.22	4.5-5.5	Moderate-----	0.32		
3, 4------------- Amy	0-10	15-25	1.25-1.60	0.6-2.0	0.13-0.24	4.5-5.5	Low----------	0.43	5	.5-2
	10-66	20-32	1.25-1.50	0.06-0.2	0.16-0.24	4.5-5.5	Low----------	0.43		
	66-90	15-35	1.25-1.60	0.6-2.0	0.11-0.15	4.5-5.5	Low----------	0.43		
5, 6, 7, 8------- Billyhaw	0-26	50-70	1.35-1.55	<0.06	0.14-0.19	6.1-7.8	High---------	0.32	5	2-4
	26-72	60-80	1.35-1.55	<0.06	0.14-0.19	6.6-8.4	High---------	0.32		
9, 10------------ Bowie	0-14	5-15	1.40-1.60	2.0-6.0	0.10-0.15	5.1-6.5	Low----------	0.32	5	.5-1
	14-40	18-35	1.60-1.75	0.6-2.0	0.15-0.20	4.5-5.5	Low----------	0.32		
	40-72	18-35	1.70-1.80	0.2-0.6	0.15-0.20	4.5-5.5	Low----------	0.28		
11, 12, 13------- Briley	0-23	5-15	1.50-1.65	6.0-20	0.07-0.11	4.5-6.5	Low----------	0.20	5	.5-1
	23-72	15-35	1.55-1.69	0.6-2.0	0.13-0.17	4.5-6.0	Low----------	0.24		
14--------------- Caspiana	0-18	10-27	1.30-1.65	0.6-2.0	0.21-0.23	5.6-8.4	Low----------	0.37	5	2-4
	18-45	20-35	1.30-1.75	0.6-2.0	0.20-0.22	5.6-8.4	Moderate-----	0.32		
	45-72	10-35	1.30-1.65	0.6-2.0	0.15-0.23	6.1-8.4	Low----------	0.32		
15--------------- Catalpa	0-14	40-50	1.45-1.65	0.2-0.6	0.19-0.22	6.1-8.4	Moderate-----	0.28	5	2-4
	14-72	35-50	1.45-1.60	0.06-0.2	0.18-0.20	6.1-8.4	High---------	0.28		
16--------------- Demopolis	0-6	20-35	1.30-1.65	0.2-0.6	0.15-0.18	7.4-8.4	Moderate-----	0.37	1	1-2
	6-14	20-35	1.40-1.75	0.2-0.6	0.10-0.15	7.4-8.4	Low----------	0.32		
	14-18	---	---	---	---	7.4-8.4	Low----------	----		
17, 18----------- Eylau	0-6	10-20	1.40-1.60	2.0-6.0	0.12-0.16	5.1-6.5	Low----------	0.28	5	.5-1
	6-39	20-35	1.60-1.75	0.6-2.0	0.14-0.20	4.5-5.5	Low----------	0.37		
	39-72	15-30	1.70-1.80	0.2-0.6	0.10-0.14	4.5-5.5	Low----------	0.37		
19,* 20:*										
Eylau-----------	0-6	10-20	1.40-1.60	2.0-6.0	0.12-0.16	5.1-6.5	Low----------	0.28	5	.5-1
	6-39	20-35	1.60-1.75	0.6-2.0	0.14-0.20	4.5-5.5	Low----------	0.37		
	39-72	15-30	1.70-1.80	0.2-0.6	0.10-0.14	4.5-5.5	Low----------	0.37		
Urban land.										
21--------------- Felker	0-9	15-25	1.25-1.60	0.6-2.0	0.13-0.20	4.5-6.0	Low----------	0.37	5	.5-2
	9-72	20-32	1.25-1.60	0.2-0.6	0.15-0.22	4.5-6.0	Moderate-----	0.37		
22*. Fluvaquents										
23--------------- Foley	0-8	10-20	1.25-1.60	0.6-2.0	0.13-0.24	4.5-7.3	Low----------	0.43	3	.5-2
	8-17	20-35	1.25-1.50	0.2-0.6	0.18-0.24	5.1-7.3	Moderate-----	0.43		
	17-80	20-35	1.25-1.50	<0.06	0.10-0.14	5.1-9.0	Moderate-----	0.43		
24, 25----------- Forbing	0-5	12-27	1.40-1.60	0.6-2.0	0.21-0.23	5.1-6.5	Low----------	0.43	5	.5-2
	5-22	60-85	1.20-1.60	<0.06	0.18-0.20	5.6-7.3	Very high----	0.32		
	22-51	60-85	1.20-1.60	<0.06	0.16-0.20	6.1-8.4	Very high----	0.32		
	51-80	50-85	1.20-1.60	<0.06	0.16-0.20	7.4-8.4	Very high----	0.32		
26--------------- Gladewater	0-7	40-60	1.35-1.55	0.06-0.2	0.15-0.20	5.1-7.3	High---------	0.32	5	2-4
	7-72	40-60	1.35-1.55	<0.06	0.15-0.18	4.5-6.0	High---------	0.32		

See footnote at end of table.

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cm3	In/hr	In/in	pH				Pct
27, 28----------- Gore	0-7	5-15	1.30-1.50	0.6-2.0	0.20-0.22	5.1-6.0	Low-----------	0.49	5	.5-2
	7-50	40-60	1.30-1.75	<0.06	0.14-0.18	4.5-7.3	High----------	0.32		
	50-72	40-80	1.30-1.75	<0.06	0.14-0.18	5.6-7.8	High----------	0.32		
29--------------- Guyton	0-19	7-25	1.35-1.65	0.6-2.0	0.20-0.23	3.6-6.0	Low-----------	0.43	5	.5-2
	19-60	20-35	1.35-1.70	0.06-0.2	0.15-0.22	3.6-6.0	Low-----------	0.37		
	60-80	20-35	1.35-1.70	0.06-2.0	0.15-0.22	3.6-8.4	Low-----------	0.37		
30--------------- Harleston	0-7	2-8	1.25-1.35	0.6-6.0	0.08-0.16	3.6-5.5	Low-----------	0.20	5	.5-2
	7-58	8-18	1.55-1.65	0.6-2.0	0.13-0.16	4.5-5.5	Low-----------	0.32		
	58-80	8-27	1.55-1.65	0.6-2.0	0.13-0.16	4.5-5.5	Low-----------	0.32		
31, 32----------- Houston	0-25	50-67	1.40-1.50	<0.06	0.15-0.20	6.1-8.4	High----------	0.37	4	2-5
	25-41	52-71	1.40-1.50	<0.06	0.15-0.20	6.1-8.4	Very high-----	0.32		
	41-72	53-78	1.40-1.50	<0.06	0.15-0.20	6.6-8.4	Very high-----	0.32		
33, 34, 35------- Kamie	0-11	10-18	1.30-1.60	2.0-6.0	0.11-0.15	5.6-7.3	Low-----------	0.24	5	.5-1
	11-80	20-35	1.35-1.65	0.6-2.0	0.12-0.20	4.5-6.0	Low-----------	0.32		
36--------------- Kiomatia	0-7	5-15	1.30-1.60	0.6-2.0	0.10-0.15	6.1-8.4	Low-----------	0.17	5	.5-1
	7-27	2-15	1.40-1.65	6.0-20	0.05-0.10	6.1-8.4	Low-----------	0.17		
37--------------- Kipling	0-3	16-27	1.30-1.48	0.06-0.2	0.20-0.22	3.6-6.0	Moderate------	0.32	5	.5-2
	3-42	36-60	1.37-1.41	0.06-0.2	0.20-0.22	3.6-8.4	High----------	0.32		
	42-80	40-60	1.57-1.60	<0.06	0.18-0.20	5.1-8.4	Very high-----	0.32		
38--------------- Latanier	0-4	40-55	1.20-1.70	<0.06	0.18-0.20	6.6-8.4	Very high-----	0.32	5	2-4
	4-29	40-55	1.20-1.70	<0.06	0.18-0.20	6.6-8.4	Very high-----	0.32		
	29-82	10-27	1.30-1.65	0.06-2.0	0.18-0.22	6.6-8.4	Low-----------	0.37		
39--------------- Latonia	0-17	3-12	1.40-1.50	6.0-20	0.05-0.10	4.5-5.5	Very low------	0.17	4	.5-2
	17-45	10-16	1.40-1.50	2.0-6.0	0.10-0.15	4.5-5.5	Low-----------	0.20		
	45-72	3-10	1.40-1.50	6.0-20	0.05-0.10	4.5-5.5	Very low------	0.17		
40--------------- Louin	0-9	10-40	1.40-1.50	0.6-2.0	0.18-0.20	4.5-5.5	Moderate------	0.32	4	.5-2
	9-70	40-60	1.30-1.50	<0.06	0.14-0.18	4.5-5.5	Very high-----	0.28		
41, 42----------- McKamie	0-8	18-27	1.42-1.76	0.6-2.0	0.16-0.22	5.1-6.5	Moderate------	0.37	5	.5-2
	8-38	40-60	1.20-1.45	<0.06	0.18-0.20	4.5-6.0	High----------	0.32		
	38-60	14-35	1.40-1.76	0.2-2.0	0.14-0.22	4.5-8.4	Moderate------	0.37		
43--------------- Midland	0-7	27-39	1.30-1.65	0.06-0.2	0.20-0.22	5.1-6.5	Moderate------	0.37	5	.5-2
	7-82	35-55	1.19-1.65	<0.06	0.18-0.20	5.6-8.4	High----------	0.32		
44--------------- Morse	0-6	40-60	1.20-1.60	<0.06	0.15-0.18	7.4-8.4	Very high-----	0.37	5	.5-2
	6-40	45-60	1.20-1.60	<0.06	0.15-0.18	6.6-8.4	Very high-----	0.37		
	40-72	20-40	1.25-1.45	0.2-0.6	0.14-0.18	7.4-8.4	Moderate------	---		
45, 46----------- Muskogee	0-7	10-27	1.25-1.50	0.6-2.0	0.16-0.24	4.5-6.0	Low-----------	0.43	5	.5-2
	7-32	20-40	1.25-1.45	0.2-0.6	0.16-0.24	4.5-6.0	Moderate------	0.37		
	32-72	40-55	1.20-1.45	0.06-0.2	0.14-0.18	4.5-7.8	High----------	0.32		
47, 48----------- Oklared	0-6	10-18	1.30-1.60	2.0-6.0	0.11-0.15	7.4-8.4	Low-----------	0.20	5	.5-1
	6-46	10-27	1.45-1.70	2.0-6.0	0.12-0.16	7.4-8.4	Low-----------	0.32		
	46-70	5-40	1.50-1.70	2.0-6.0	0.10-0.16	7.4-8.4	Low-----------	0.32		
49, 50----------- Oktibbeha	0-9	15-27	1.20-1.50	0.6-2.0	0.15-0.22	4.5-6.5	Low-----------	0.37	3	.5-2
	9-12	20-40	1.20-1.50	0.2-0.6	0.15-0.20	4.5-6.5	Moderate------	0.32		
	12-32	50-65	1.00-1.30	<0.06	0.12-0.16	4.5-6.5	High----------	0.32		
	32-48	60-77	1.10-1.40	<0.06	0.05-0.10	6.6-8.4	High----------	0.32		
51--------------- Ouachita	0-18	8-25	1.25-1.60	0.6-2.0	0.15-0.24	4.5-6.0	Low-----------	0.37	5	2-4
	18-39	18-35	1.25-1.60	0.2-0.6	0.15-0.24	4.5-5.5	Low-----------	0.32		
	39-72	10-30	1.25-1.65	0.6-6.0	0.07-0.24	4.5-5.5	Low-----------	0.24		

See footnote at end of table.

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cm3	In/hr	In/in	pH				Pct
52:*										
Ouachita---------	0-18	8-25	1.25-1.60	0.6-2.0	0.15-0.24	4.5-6.0	Low-----------	0.37	5	2-4
	18-39	18-35	1.25-1.60	0.2-0.6	0.15-0.24	4.5-5.5	Low-----------	0.32		
	39-72	10-30	1.25-1.65	0.6-6.0	0.07-0.24	4.5-5.5	Low-----------	0.24		
Ochlockonee------	0-12	3-18	1.30-1.70	2.0-6.0	0.07-0.14	4.5-5.5	Low-----------	0.20	5	.5-2
	12-72	8-18	1.40-1.70	0.6-6.0	0.10-0.20	4.5-5.5	Low-----------	0.20		
53, 54----------- Perry	0-5	40-80	1.20-1.60	<0.06	0.17-0.20	4.5-6.0	High----------	0.32	5	2-4
	5-21	55-85	1.17-1.50	<0.06	0.17-0.20	5.1-7.3	Very high-----	0.28		
	21-72	55-85	1.17-1.50	<0.06	0.17-0.20	6.1-8.4	Very high-----	0.28		
55, 56----------- Rilla	0-7	14-27	1.30-1.80	0.6-2.0	0.21-0.23	4.5-7.3	Low-----------	0.43	5	1-3
	7-80	18-35	1.30-1.80	0.6-2.0	0.20-0.22	3.6-5.5	Moderate------	0.32		
57--------------- Ruston	0-13	5-20	1.30-1.70	0.6-2.0	0.09-0.16	4.5-6.5	Low-----------	0.28	5	.5-2
	13-37	18-35	1.40-1.80	0.6-2.0	0.12-0.17	4.5-6.0	Low-----------	0.28		
	37-50	10-20	1.30-1.70	0.6-2.0	0.12-0.15	4.5-6.0	Low-----------	0.32		
	50-72	15-38	1.40-1.70	0.6-2.0	0.12-0.17	4.5-6.0	Low-----------	0.28		
58, 59, 60, 61, 62--------------- Sacul	0-9	5-20	1.30-1.50	0.6-2.0	0.10-0.20	4.5-5.5	Low-----------	0.32	5	.5-2
	9-42	40-60	1.20-1.35	0.06-0.2	0.12-0.18	4.5-5.5	High----------	0.32		
	42-57	20-40	1.25-1.45	0.2-0.6	0.16-0.24	4.5-5.5	Moderate------	0.37		
	57-72	10-40	1.25-1.50	0.2-2.0	0.12-0.18	4.5-5.5	Low-----------	0.37		
63:*										
Sacul------------	0-9	5-20	1.30-1.50	0.6-2.0	0.10-0.20	4.5-5.5	Low-----------	0.32	5	.5-2
	9-42	40-60	1.20-1.35	0.06-0.2	0.12-0.18	4.5-5.5	High----------	0.32		
	42-57	20-40	1.25-1.45	0.2-0.6	0.16-0.24	4.5-5.5	Moderate------	0.37		
	57-72	10-40	1.25-1.50	0.2-2.0	0.12-0.18	4.5-5.5	Low-----------	0.37		
Urban land.										
64, 65, 66------- Saffell	0-6	5-20	1.30-1.60	2.0-6.0	0.05-0.10	4.5-5.5	Low-----------	0.20	4	.5-2
	6-72	12-35	1.25-1.60	0.6-2.0	0.06-0.12	4.5-5.5	Low-----------	0.28		
67, 68----------- Sardis	0-7	10-25	1.25-1.60	0.6-2.0	0.15-0.24	4.5-6.0	Low-----------	0.37	5	.5-2
	7-48	14-35	1.25-1.60	0.6-2.0	0.15-0.24	4.5-6.0	Low-----------	0.37		
	48-72	8-25	1.25-1.60	0.6-2.0	0.10-0.24	4.5-6.0	Low-----------	0.37		
69, 70----------- Sawyer	0-5	15-25	1.25-1.60	0.6-2.0	0.15-0.24	4.5-5.5	Low-----------	0.43	3	.5-2
	5-28	20-35	1.25-1.60	0.2-0.6	0.15-0.24	4.5-5.5	Moderate------	0.37		
	28-80	40-60	1.15-1.50	0.06-0.2	0.12-0.18	4.5-5.5	High----------	0.32		
71, 72, 73------- Severn	0-5	8-17	1.30-1.50	2.0-6.0	0.13-0.20	7.4-8.4	Low-----------	0.37	5	.5-2
	5-74	8-17	1.35-1.60	2.0-6.0	0.11-0.20	7.4-8.4	Low-----------	0.32		
74--------------- Smithdale	0-10	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low-----------	0.28	5	.5-2
	10-54	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low-----------	0.24		
	54-72	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low-----------	0.28		
75--------------- Smithton	0-16	5-18	1.30-1.50	0.6-2.0	0.10-0.20	4.5-5.5	Low-----------	0.32	5	.5-2
	16-54	12-18	1.30-1.50	0.2-0.6	0.11-0.20	4.5-5.5	Low-----------	0.32		
	54-72	15-25	1.25-1.45	0.2-0.6	0.11-0.24	4.5-5.5	Low-----------	0.37		
76--------------- Sumter	0-7	32-40	1.30-1.65	0.06-2.0	0.12-0.17	7.4-8.4	High----------	0.37	3	2-5
	7-24	35-57	1.35-1.55	0.06-2.0	0.12-0.17	7.4-8.4	High----------	0.37		
	24-39	---	---	---	---	---	--------------	----		
77--------------- Trinity	0-72	60-80	1.30-1.55	<0.06	0.15-0.20	7.4-8.4	Very high-----	0.32	5	1-4
78*. Udorthents										

See footnote at end of table.

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cm3	In/hr	In/in	pH				Pct
79, 80, 81--------	0-13	5-15	1.30-1.50	2.0-6.0	0.10-0.15	5.1-7.3	Low-----------	0.20	5	.5-2
Woden	13-78	8-18	1.35-1.60	2.0-6.0	0.10-0.15	5.1-6.5	Low-----------	0.20		
82----------------	0-15	10-25	1.25-1.50	0.2-0.6	0.16-0.24	3.6-5.5	Low-----------	0.49	5	.5-2
Wrightsville	15-57	35-55	1.20-1.45	<0.06	0.14-0.22	3.6-6.6	High----------	0.37		
	57-82	20-45	1.20-1.50	<0.06	0.14-0.22	3.6-8.4	High----------	0.43		
83----------------	0-6	27-40	1.35-1.70	0.06-0.2	0.18-0.22	5.6-7.3	High----------	0.32	---	---
Yorktown	6-50	60-80	1.15-1.45	<0.06	0.12-0.18	5.6-7.3	Very high----	0.32		
	50-60	60-80	1.15-1.45	<0.06	0.12-0.18	7.4-8.4	Very high----	0.32		

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--SOIL AND WATER FEATURES

["Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated]

Map symbol and soil name	Hydro-logic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard-ness	Uncoated steel	Concrete
					Ft			In			
1: Acadia	D	None	---	---	0.5-1.5	Perched	Dec-Apr	>60	---	High	High.
2: Adaton	D	None	---	---	0-0.5	Apparent	Jan-Apr	>60	---	High	High.
3: Amy	D	None	---	---	0-1.0	Perched	Dec-Apr	>60	---	High	Moderate.
4: Amy	D	Frequent	Brief to very long.	Dec-Jun	0-1.0	Perched	Dec-Apr	>60	---	High	Moderate.
5, 6: Billyhaw	D	Rare	---	---	1.0-2.0	Apparent	Dec-Jun	>60	---	High	Low.
7: Billyhaw	D	Occasional	Brief	Dec-Jun	1.0-2.0	Apparent	Dec-Jun	>60	---	High	Low.
8: Billyhaw	D	Frequent	Brief	Dec-Jun	1.0-2.0	Apparent	Dec-Jun	>60	---	High	Low.
9: Bowie	B	None	---	---	>6.0	---	---	>60	---	Moderate	High.
10: Bowie	B	None	---	---	>6.0	---	---	>60	---	Moderate	High.
11, 12, 13: Briley	B	None	---	---	>6.0	---	---	>60	---	Moderate	High.
14: Caspiana	B	None	---	---	>4.0	Apparent	Dec-Apr	>60	---	Moderate	Low.
15: Catalpa	C	Rare	---	---	1.5-2.0	Apparent	Feb-Mar	>60	---	High	Low.
16: Demopolis	C	None	---	---	>6.0	---	---	4-16	Soft	Moderate	Low.
17, 18: Eylau	C	None	---	---	2.0-3.0	Perched	Feb-May	>60	---	Moderate	High.
19,* 20:* Eylau	C	None	---	---	2.0-3.0	Perched	Feb-May	>60	---	Moderate	High.
Urban land.											
21: Felker	B	None	---	---	2.0-3.0	Apparent	Nov-Mar	>60	---	High	High.
22*. Fluvaquents											
23: Foley	D	None	---	---	0-1.0	Perched	Dec-Apr	>60	---	High	Low.
24, 25: Forbing	D	None	---	---	>6.0	---	---	>60	---	High	Low.
26: Gladewater	D	Frequent	Brief to long.	Nov-May	0-3.5	Apparent	Nov-May	>60	---	High	Moderate.
27, 28: Gore	D	None	---	---	>6.0	---	---	>60	---	High	Low.

See footnotes at end of table.

TABLE 15.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydro-logic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
					Ft			In			
29 Guyton	D	Frequent	Very brief to long.	Nov-Jun	0-1.5	Perched	Dec-May	>60	---	High	Moderate.
30 Harleston	C	None	---	---	2.0-3.0	Apparent	Nov-Mar	>60	---	Moderate	High.
31, 32 Houston	D	None	---	---	4.0-6.0	Apparent	Jan-Mar	48-60	Soft	High	Moderate.
33, 34, 35 Kamie	B	None	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
36 Kiomatia	A	Frequent	Brief	Feb-Jun	3.0-5.0	Apparent	Jan-Jul	>60	---	Low	Low.
37 Kipling	D	None	---	---	1.5-3.0	Perched	Jan-Mar	>60	---	High	High.
38 Latanier	D	None	---	---	1.0-3.0	Apparent	Dec-Apr	>60	---	High	Low.
39 Latonia	B	None	---	---	>6.0	---	---	>60	---	Low	Moderate.
40 Louin	D	None	---	---	0-2.0	Apparent	Jan-Apr	>60	---	High	High.
41, 42 McKamie	D	None	---	---	>6.0	---	---	>60	---	High	Moderate.
43 Midland	D	None	---	---	0.5-3.0	Apparent	Dec-Apr	>60	---	High	Moderate.
44 Morse	D	None	---	---	>6.0	---	---	>60	---	High	Low.
45, 46 Muskogee	C	None	---	---	1.0-2.0	Perched	Jan-Apr	>60	---	High	Moderate.
47 Oklared	B	Rare	---	---	4.0-5.0	Apparent	Mar-May	>60	---	Moderate	Low.
48 Oklared	B	Occasional	Very brief	Jan-Jul	4.0-5.0	Apparent	Mar-May	>60	---	Moderate	Low.
49, 50 Oktibbeha	D	None	---	---	>6.0	---	---	>60	---	High	High.
51 Ouachita	C	Occasional	Brief to long.	Dec-May	>6.0	---	---	>60	---	Moderate	Moderate.
52:*											
Ouachita	C	Occasional	Brief to long.	Dec-May	>6.0	---	---	>60	---	Moderate	Moderate.
Ochlockonee	B	Occasional	Very brief	Dec-Apr	3.0-4.0	Apparent	Dec-Apr	>60	---	Low	High.
53 Perry	D	None	---	---	0-2.0	Apparent	Dec-Apr	>60	---	High	Moderate.
54 Perry	D	Frequent	Brief to very long.	Dec-May	0-2.0	Apparent	Dec-Apr	>60	---	High	Moderate.
55, 56 Rilla	B	None	---	---	>6.0			>60	---	Moderate	High.
57 Ruston	B	None	---	---	>6.0	---	---	>60	---	Moderate	Moderate.

See footnotes at end of table.

TABLE 15.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydro-logic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard-ness	Uncoated steel	Concrete
					Ft			In			
58, 59, 60, 61, 62------------- Sacul	C	None--------	---	---	2.0-4.0	Apparent	Dec-Apr	>60	---	High-----	Moderate.
63:* Sacul------------	C	None--------	---	---	2.0-4.0	Apparent	Dec-Apr	>60	---	High-----	Moderate.
Urban land.											
64, 65, 66-------- Saffell	B	None--------	---	---	>6.0	---	---	60	---	Low------	Moderate.
67--------------- Sardis	C	Occasional	Brief-----	Dec-May	1.0-3.0	Apparent	Jan-May	>60	---	High-----	Moderate.
68--------------- Sardis	C	Frequent----	Brief-----	Dec-May	1.0-3.0	Apparent	Jan-May	>60	---	High-----	Moderate.
69, 70----------- Sawyer	C	None--------	---	---	2.0-3.0	Perched	Dec-Apr	>60	---	High-----	High.
71, 72----------- Severn	B	Rare--------	---	---	>6.0	---	---	>60	---	Low------	Low.
73--------------- Severn	B	Occasional	Very brief to long.	Jan-Oct	>6.0	---	---	>60	---	Low------	Low.
74--------------- Smithdale	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate.
75--------------- Smithton	D	None--------	---	---	0-1.0	Perched	Dec-May	>60	---	High-----	High.
76--------------- Sumter	C	None--------	---	---	>6.0	---	---	20-40	Soft	Moderate	Low.
77--------------- Trinity	D	Occasional	Brief to long.	Dec-May	0-3.0	Apparent	Nov-Feb	>60	---	High-----	Low.
78.* Udorthents											
79, 80, 81-------- Woden	B	None--------	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
82--------------- Wrightsville	D	None--------	---	---	0.6-1.5	Perched	Dec-Apr	>60	---	High-----	High.
83:**------------- Yorktown	D	Frequent----	Very long	Oct-Aug	+5-0.5	Apparent	Oct-Aug	>60	---	---	---

*See description of the map unit for composition and behavior characteristics of the map unit.
**In the "High water table--Depth" column, a plus sign preceding the range in depth indicates that the water table is above the surface of the soil. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

TABLE 16.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Acadia	Fine, montmorillonitic, thermic Aeric Ochraqualfs
Adaton	Fine-silty, mixed, thermic Typic Ochraqualfs
Amy	Fine-silty, siliceous, thermic Typic Ochraquults
Billyhaw	Very-fine, montmorillonitic, thermic Typic Chromuderts
Bowie	Fine-loamy, siliceous, thermic Plinthic Paleudults
Briley	Loamy, siliceous, thermic Arenic Paleudults
Caspiana	Fine-silty, mixed, thermic Typic Argiudolls
Catalpa	Fine, montmorillonitic, thermic Fluvaquentic Hapludolls
Demopolis	Loamy-skeletal, carbonatic, thermic, shallow Typic Udorthents
Eylau	Fine-loamy, siliceous, thermic Fragiaquic Paleudults
Felker	Fine-silty, siliceous, thermic Aquic Paleudults
Foley	Fine-silty, mixed, thermic Albic Glossic Natraqualfs
Forbing	Very-fine, montmorillonitic, thermic Vertic Paleudalfs
Gladewater	Fine, montmorillonitic, nonacid, thermic Vertic Haplaquepts
Gore	Fine, mixed, thermic Vertic Paleudalfs
Guyton	Fine-silty, siliceous, thermic Typic Glossaqualfs
Harleston	Coarse-loamy, siliceous, thermic Aquic Paleudults
*Houston	Very-fine, montmorillonitic, thermic Typic Chromuderts
Kamie	Fine-loamy, mixed, thermic Typic Paleudalfs
Kiomatia	Sandy, mixed, thermic Typic Udifluvents
Kipling	Fine, montmorillonitic, thermic Vertic Hapludalfs
Latanier	Clayey over loamy, mixed, thermic Vertic Hapludolls
Latonia	Coarse-loamy, siliceous, thermic Typic Hapludults
Louin	Fine, montmorillonitic, thermic Aquentic Chromuderts
McKamie	Fine, mixed, thermic Vertic Hapludalfs
Midland	Fine, montmorillonitic, thermic Typic Ochraqualfs
Morse	Fine, mixed, thermic Entic Chromuderts
Muskogee	Fine-silty, mixed, thermic Aquic Paleudalfs
Ochlockonee	Coarse-loamy, siliceous, acid, thermic Typic Udifluvents
Oklared	Coarse-loamy, mixed (calcareous), thermic Typic Udifluvents
Oktibbeha	Very-fine, montmorillonitic, thermic Vertic Hapludalfs
Ouachita	Fine-silty, siliceous, thermic Fluventic Dystrochrepts
Perry	Very-fine, montmorillonitic, nonacid, thermic Vertic Haplaquepts
Rilla	Fine-silty, mixed, thermic Typic Hapludalfs
Ruston	Fine-loamy, siliceous, thermic Typic Paleudults
Sacul	Clayey, mixed, thermic Aquic Hapludults
*Saffell	Loamy-skeletal, siliceous, thermic Typic Hapludults
Sardis	Fine-silty, siliceous, thermic Fluvaquentic Dystrochrepts
Sawyer	Fine-silty, siliceous, thermic Aquic Paleudults
Severn	Coarse-silty, mixed (calcareous), thermic Typic Udifluvents
Smithdale	Fine-loamy, siliceous, thermic Typic Paleudults
Smithton	Coarse-loamy, siliceous, thermic Typic Paleaquults
Sumter	Fine-silty, carbonatic, thermic Rendollic Eutrochrepts
*Trinity	Very-fine, montmorillonitic, thermic Typic Pelluderts
Woden	Coarse-loamy, siliceous, thermic Typic Paleudalfs
Wrightsville	Fine, mixed, thermic Typic Glossaqualfs
Yorktown	Very-fine, montmorillonitic, nonacid, thermic Typic Fluvaquents

*The soil is a taxadjunct to the series. See text for description of those characteristics of the soil that are outside the range of the series.

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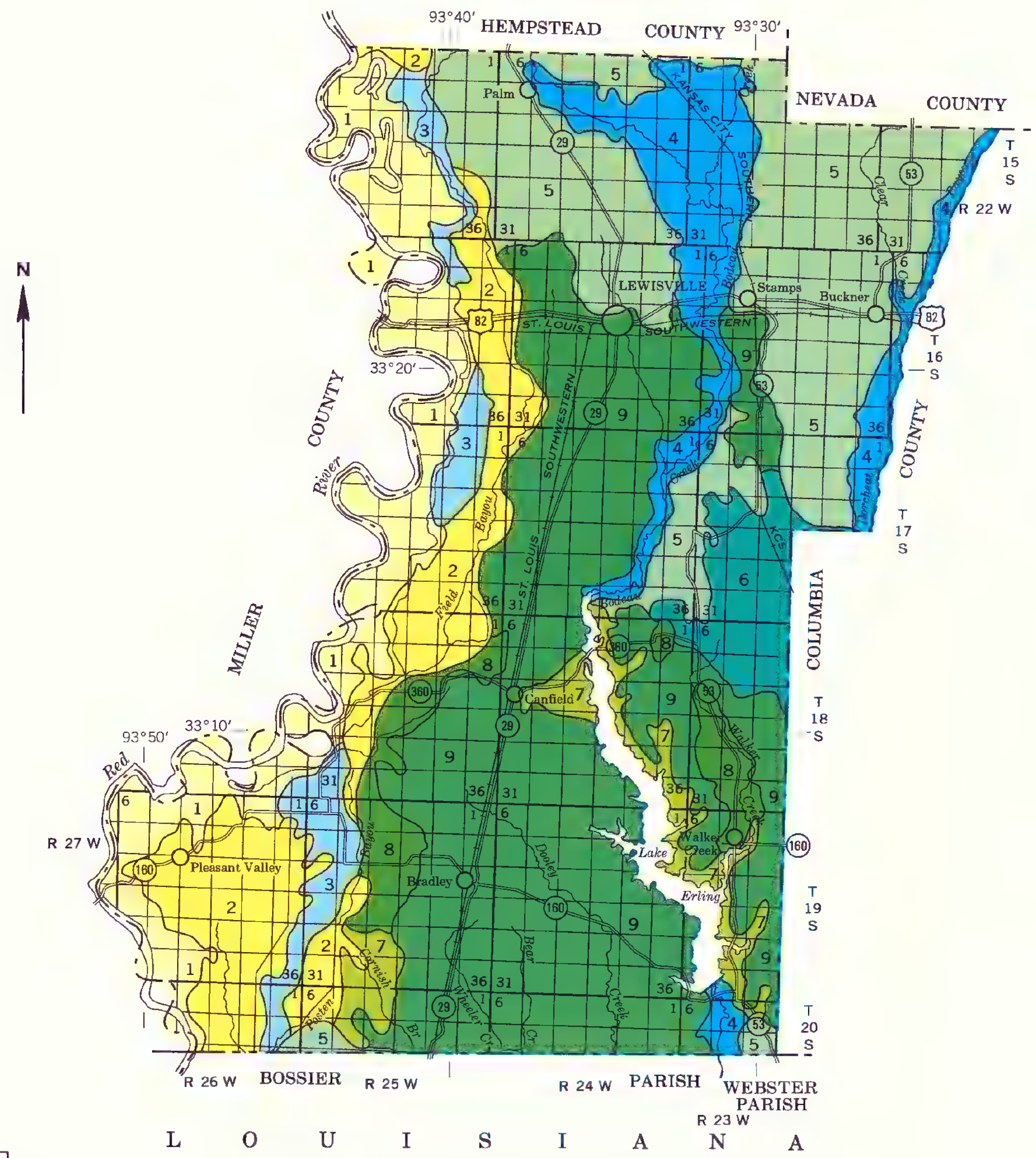


LEGEND

1	SEVERN-OKLARED: Deep, level to gently undulating, well drained, loamy soils that formed in silty and loamy alluvium; on flood plains of the Red River
2	PERRY-BILLYHAW: Deep, level, poorly drained and somewhat poorly drained, clayey soils that formed in clayey alluvium; on bottom lands of the Red River
3	RILLA-CASPIANA: Deep, level and gently undulating, well drained, loamy soils that formed in loamy and silty alluvium; on bottom lands of the Red River
4	GUYTON: Deep, level, poorly drained, loamy soils that formed in silty alluvium; on flood plains of the Coastal Plains
5	SACUL-SMITHDALE-BOWIE: Deep, nearly level to steep, moderately well drained and well drained, loamy soils that formed in loamy and clayey deposits; on uplands of the Coastal Plains
6	ADATON: Deep, level, poorly drained, loamy soils that formed in silty alluvium; on low terraces of the Coastal Plains
7	GORE-McKAMIE: Deep, nearly level to moderately steep, moderately well drained and well drained soils that formed in clayey alluvium; on terraces of the Coastal Plains
8	WODEN-KAMIE: Deep, level to moderately steep, well drained, loamy soils that formed in loamy sediment; on uplands of the Coastal Plains
9	WRIGHTSVILLE-LOUIN: Deep, level, poorly drained and somewhat poorly drained soils that formed in clayey alluvium; on broad flats of terraces

Compiled 1982

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

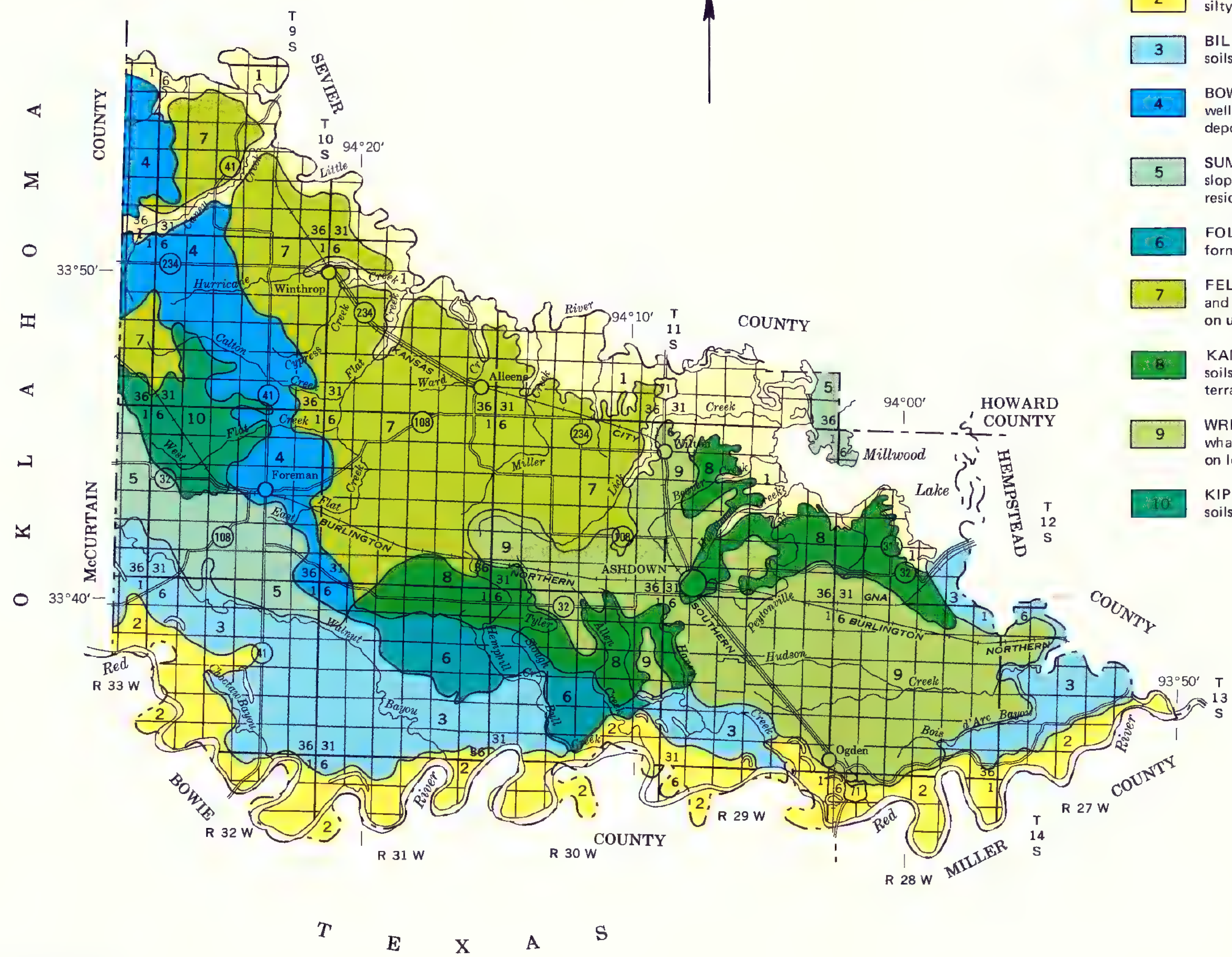
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ARKANSAS AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP
LAFAYETTE COUNTY, ARKANSAS

Scale 1:316,800

1 0 1 2 3 4 5 Miles

1 0 5 10 Km



LEGEND

1	GUYTON-SARDIS: Deep, level to gently undulating, poorly drained and somewhat poorly drained, loamy soils that formed in silty and loamy alluvium; on flood plains of the Coastal Plains
2	SEVERN: Deep, level to gently undulating, well drained, loamy soils that formed in silty and loamy alluvium; on flood plains of the Red River
3	BILLYHAW: Deep, level to gently undulating, somewhat poorly drained, clayey soils that formed in clayey alluvium; on bottom lands of the Red River
4	BOWIE-SACUL-SAFFELL: Deep, nearly level to moderately sloping, moderately well drained and well drained, loamy soils that formed in clayey, loamy, and gravelly deposits; on uplands of the Coastal Plains
5	SUMTER-OKTIBBEHA: Moderately deep and deep, gently sloping to moderately sloping, well drained and moderately well drained, loamy soils that formed in residuum from calcareous chalk and marl; on uplands of the Blackland Prairies
6	FOLEY-MIDLAND: Deep, level and nearly level, poorly drained, loamy soils that formed in silty and clayey sediment; on low terraces of the Coastal Plains
7	FELKER-HARLESTON: Deep, level and nearly level, somewhat poorly drained and moderately well drained, loamy soils that formed in loamy marine sediment; on uplands of the Coastal Plains
8	KAMIE-McKAMIE: Deep, nearly level to moderately steep, well drained, loamy soils that formed in loamy and clayey, alluvial or marine sediment; on uplands and terraces of the Coastal Plains
9	WRIGHTSVILLE-ACADIA: Deep, level and nearly level, poorly drained and somewhat poorly drained, loamy soils that formed in loamy and clayey alluvial sediment; on low terraces and broad flats of the Coastal Plains
10	KIPLING-LOUIN: Deep, level to gently sloping, somewhat poorly drained, loamy soils that formed in clayey sediment; on uplands and terraces of the Coastal Plains

Compiled 1982

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts

SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

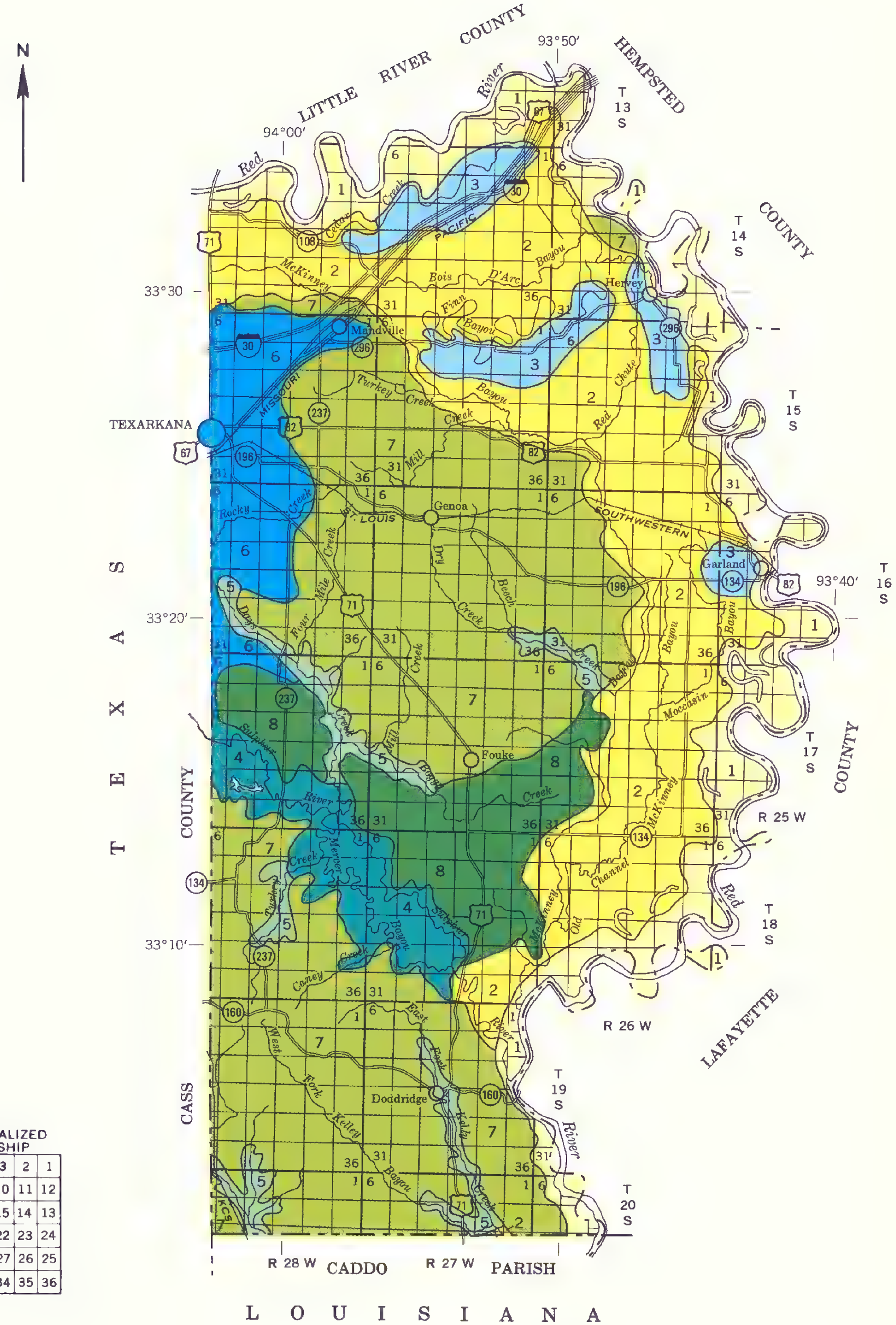
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ARKANSAS AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP
LITTLE RIVER COUNTY, ARKANSAS

Scale 1:316,800

1 0 1 2 3 4 5 Miles

1 0 5 10 Km



SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

LEGEND

- 1 — SEVERN-KIOMATIA-OKLARED: Deep, level to gently undulating, well drained, loamy soils that formed in silty, sandy, and loamy alluvium; on flood plains of the Red River
- 2 — BILLYHAW-PERRY: Deep, level, somewhat poorly drained and poorly drained, clayey soils that formed in clayey alluvium; on bottom lands of the Red River
- 3 — RILLA-CASPIANA: Deep, level and gently undulating, well drained, loamy soils that formed in loamy and silty alluvium; on bottom lands of the Red River
- 4 — GLADEWATER-PERRY: Deep, level, poorly drained, clayey soils that formed in clayey alluvium; on flood plains of the Sulphur River
- 5 — AMY: Deep, level, poorly drained, loamy soils that formed in silty alluvium; on broad flats and flood plains of the Coastal Plains
- 6 — SACUL-EYLAU-SAWYER: Deep, nearly level to steep, moderately well drained, loamy soils that formed in loamy and clayey sediment; on uplands of the Coastal Plains
- 7 — SACUL-BOWIE-EYLAU: Deep, nearly level to steep, moderately well drained, loamy soils that formed in loamy and clayey sediment; on uplands of the Coastal Plains
- 8 — WRIGHTSVILLE-MUSKOGEE: Deep, level to gently sloping, poorly drained and moderately well drained, loamy soils that formed in loamy and clayey alluvium; on terraces and broad flats of the Coastal Plains

Compiled 1982

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

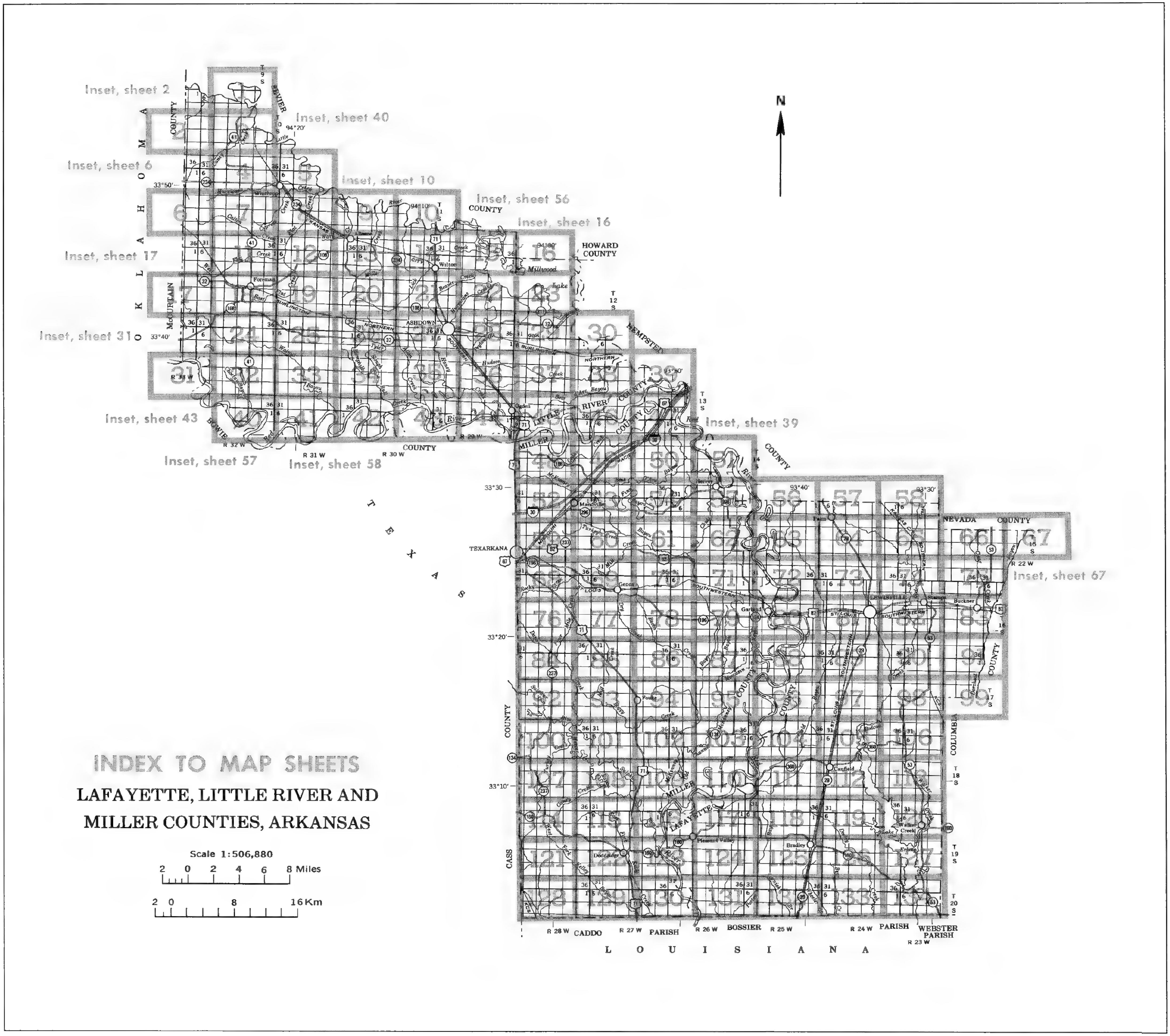
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ARKANSAS AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP
MILLER COUNTY, ARKANSAS

Scale 1:316,800

1 0 1 2 3 4 5 Miles

1 0 5 10 Km


INDEX TO MAP SHEETS
LAFAYETTE, LITTLE RIVER AND MILLER COUNTIES, ARKANSAS
Scale 1:506,880
2 0 2 4 6 8 Miles
2 0 8 16 Km
N
Inset, sheet 2
Inset, sheet 40
Inset, sheet 6
Inset, sheet 10
Inset, sheet 56
Inset, sheet 16
Inset, sheet 17
Inset, sheet 31
Inset, sheet 43
Inset, sheet 39
Inset, sheet 57
Inset, sheet 58
Inset, sheet 67
OKLAHOMA
TEXAS
LOUISIANA
HOWARD COUNTY
HEMPSTEAD COUNTY
NEVADA COUNTY
COLUMBIA COUNTY
CASS COUNTY
BOWIE COUNTY
McCURTAIN COUNTY
SEVIER COUNTY
CADDO PARISH
BOSSIER PARISH
WEBSTER PARISH
TEXARKANA
ASHDOWN
LEWISVILLE

SOIL LEGEND

The legend is numeric. Soils without a slope designation in the name are those that are found only on nearly level landscapes of occasionally flooded or frequently flood bottom lands.

SYMBOL	NAME
1	Acadia silt loam, 0 to 2 percent slopes
2	Adaton silt loam, 0 to 1 percent slopes
3	Amy silt loam, 0 to 1 percent slopes
4	Amy silt loam, frequently flooded
5	Billyhaw clay, 0 to 1 percent slopes
6	Billyhaw clay, gently undulating
7	Billyhaw clay, 0 to 1 percent slopes, occasionally flooded
8	Billyhaw clay, 0 to 1 percent slopes, frequently flooded
9	Bowie fine sandy loam, 1 to 3 percent slopes
10	Bowie fine sandy loam, 3 to 8 percent slopes
11	Briley loamy fine sand, 1 to 3 percent slopes
12	Briley loamy fine sand, 3 to 8 percent slopes
13	Briley loamy fine sand, 8 to 12 percent slopes
14	Caspiana silt loam, 0 to 1 percent slopes
15	Catalpa silty clay, 0 to 1 percent slopes
16	Demopolis silty clay loam, 3 to 20 percent slopes, eroded
17	Eylau fine sandy loam, 1 to 3 percent slopes
18	Eylau fine sandy loam, 3 to 5 percent slopes
19	Eylau-Urban land complex, 1 to 3 percent slopes
20	Eylau-Urban land complex, 3 to 5 percent slopes
21	Felker silt loam, 0 to 1 percent slopes
22	Fluvaquents, frequently flooded
23	Foley silt loam, 0 to 2 percent slopes
24	Forbing silt loam, 1 to 3 percent slopes
25	Forbing silt loam, 3 to 8 percent slopes
26	Gladewater clay, frequently flooded
27	Gore silt loam, 1 to 3 percent slopes
28	Gore silt loam, 3 to 8 percent slopes
29	Guyton silt loam, frequently flooded
30	Harleston fine sandy loam, 1 to 3 percent slopes
31	Houston clay, 1 to 3 percent slopes
32	Houston clay, 3 to 8 percent slopes
33	Kamie fine sandy loam, 1 to 3 percent slopes
34	Kamie fine sandy loam, 3 to 8 percent slopes
35	Kamie fine sandy loam, 8 to 20 percent slopes
36	Kiomatia loamy fine sand, frequently flooded
37	Kipling silt loam, 2 to 5 percent slopes
38	Latanier clay, gently undulating
39	Latonia loamy fine sand, 2 to 5 percent slopes
40	Louin silty clay loam, 0 to 1 percent slopes
41	McKamie silt loam, 2 to 5 percent slopes
42	McKamie silt loam, 5 to 20 percent slopes
43	Midland silty clay loam, 0 to 1 percent slopes
44	Morse clay, 3 to 8 percent slopes, eroded
45	Muskogee silt loam, 1 to 3 percent slopes
46	Muskogee silt loam, 3 to 8 percent slopes
47	Oklared fine sandy loam, gently undulating
48	Oklared fine sandy loam, occasionally flooded
49	Oktibbeha silt loam, 3 to 8 percent slopes
50	Oktibbeha silt loam, 8 to 12 percent slopes
51	Ouachita silt loam, occasionally flooded
52	Ouachita and Ochlockonee soils, occasionally flooded
53	Perry clay, 0 to 1 percent slopes
54	Perry clay, frequently flooded
55	Rilla silt loam, 0 to 1 percent slopes
56	Rilla silt loam, gently undulating
57	Ruston fine sandy loam, 2 to 5 percent slopes
58	Sacul fine sandy loam, 1 to 3 percent slopes
59	Sacul fine sandy loam, 3 to 8 percent slopes
60	Sacul fine sandy loam, 8 to 12 percent slopes
61	Sacul fine sandy loam, 12 to 20 percent slopes
62	Sacul fine sandy loam, 20 to 40 percent slopes
63	Sacul-Urban land complex, 3 to 8 percent slopes
64	Saffell gravelly fine sandy loam, 1 to 3 percent slopes
65	Saffell gravelly fine sandy loam, 3 to 8 percent slopes
66	Saffell gravelly fine sandy loam, 8 to 12 percent slopes
67	Sardis silt loam, occasionally flooded
68	Sardis silt loam, frequently flooded
69	Sawyer silt loam, 1 to 3 percent slopes
70	Sawyer silt loam, 3 to 8 percent slopes
71	Severn silt loam, 0 to 1 percent slopes
72	Severn silt loam, gently undulating
73	Severn silt loam, occasionally flooded
74	Smithdale fine sandy loam, 5 to 8 percent slopes
75	Smithton fine sandy loam, 0 to 2 percent slopes
76	Sumter silty clay loam, 5 to 12 percent slopes, eroded
77	Trinity clay, occasionally flooded
78	Udorthents
79	Woden fine sandy loam, 0 to 1 percent slopes
80	Woden fine sandy loam, 1 to 3 percent slopes
81	Woden fine sandy loam, 3 to 8 percent slopes
82	Wrightsville silt loam, 0 to 1 percent slopes
83	Yorktown silty clay loam, frequently flooded

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline & neatline

AD HOC BOUNDARY (label) — Hedley Airstrip

- Small airport, airfield, park, oilfield, cemetery, or flood pool — FLOOD POOL LINE

STATE COORDINATE TICK

LAND DIVISION CORNERS (sections and land grants)

ROADS

- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEM & DESIGNATIONS

- Interstate — 21
- Federal — 173
- State — 28
- County, farm or ranch — 1283

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad

DAMS

- Large (to scale)
- Medium or small — water

PITS — w

- Gravel pit
- Mine or quarry

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house (omit in urban areas)
- Church
- School
- Indian mound (label) — Indian Mound
- Located object (label) — Tower
- Tank (label) — Gas
- Wells, oil or gas
- Windmill
- Kitchen midden

WATER FEATURES

DRAINAGE

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end
- Canals or ditches
  - Double-line (label) — CANAL
  - Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

- Perennial — water, w
- Intermittent — int, i

MISCELLANEOUS WATER FEATURES

- Marsh or swamp
- Spring
- Well, artesian
- Well, irrigation
- Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS — 18 19

ESCARPMENTS

- Bedrock (points down slope)
- Other than bedrock (points down slope)

SHORT STEEP SLOPE

GULLY

DEPRESSION OR SINK

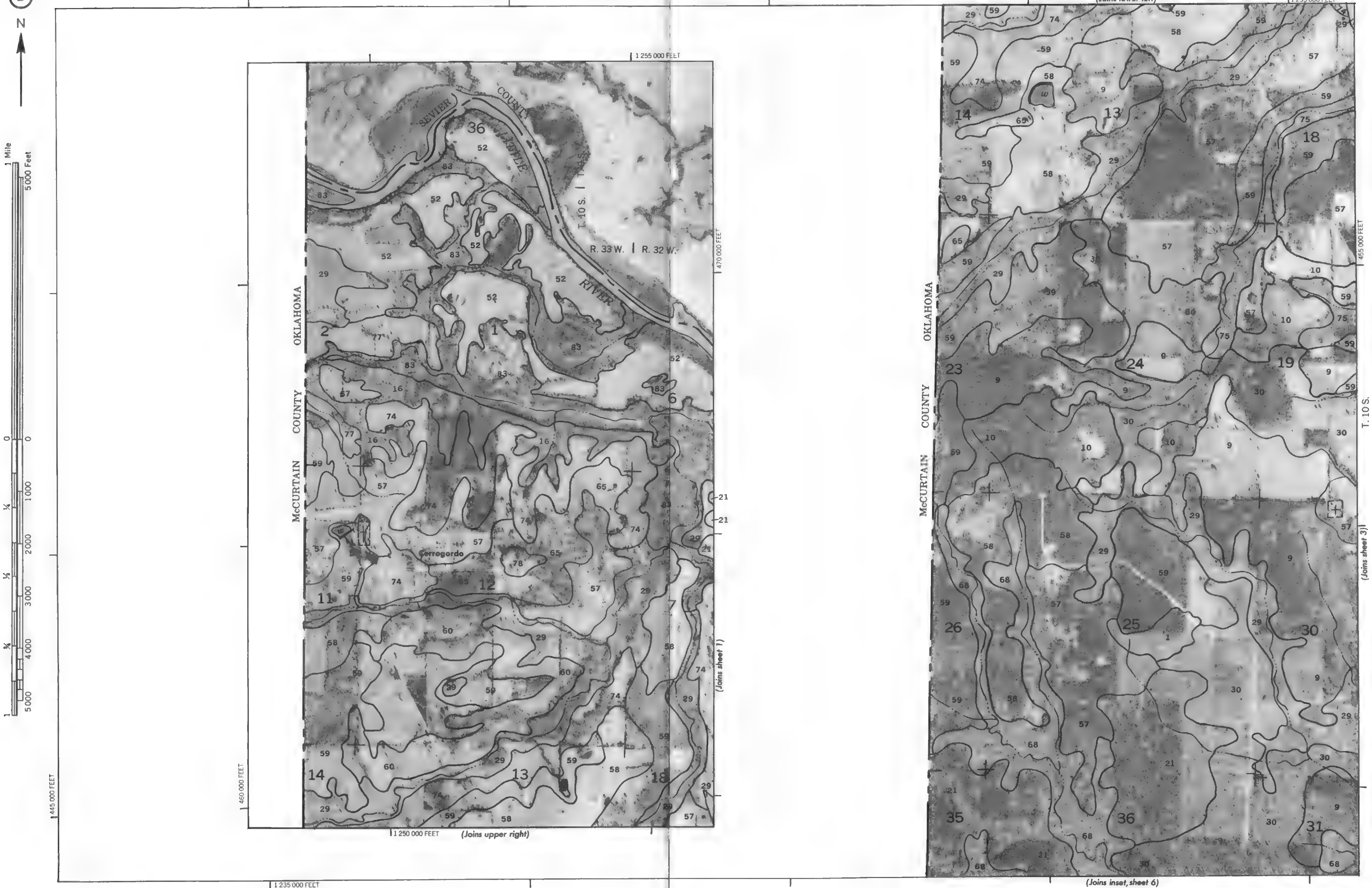
SOIL SAMPLE SITE (normally not shown)

MISCELLANEOUS

- Blowout
- Clay spot
- Gravelly spot
- Gumbo, slick or scabby spot (sodic)
- Dumps and other similar non soil areas
- Prominent hill or peak
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip (tips point upslope)
- Stony spot, very stony spot

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 1

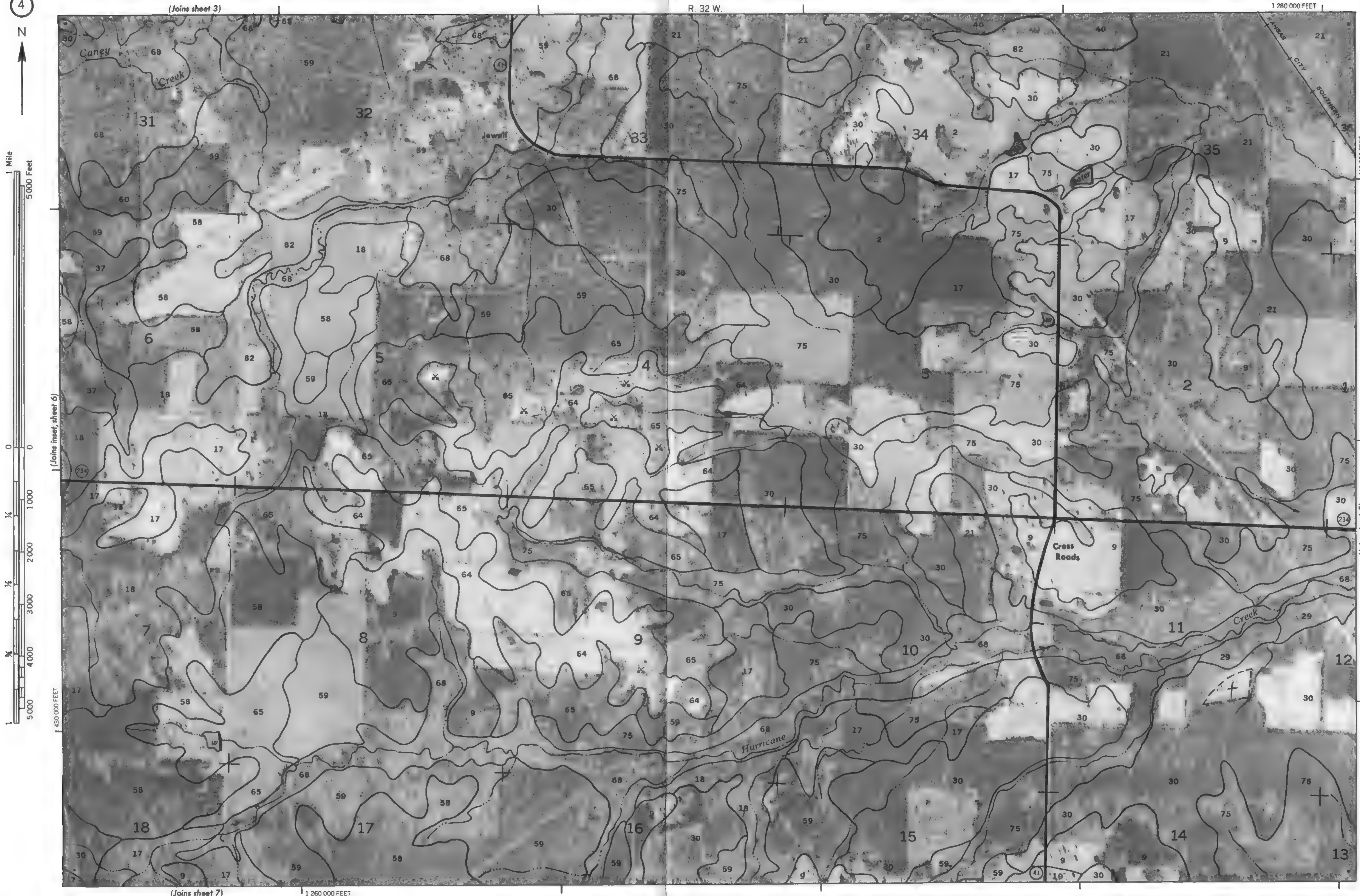
This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 3

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

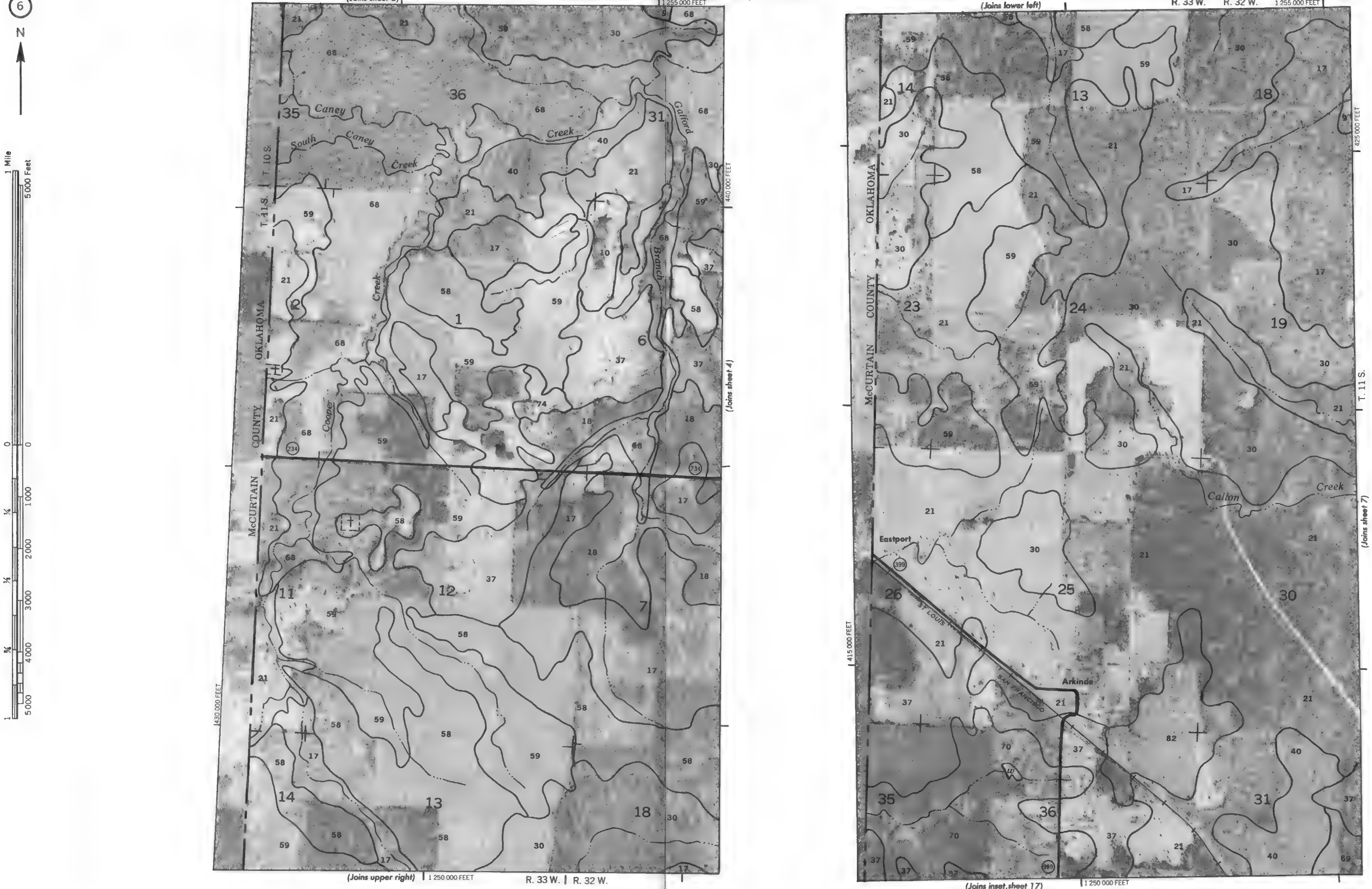


This map is [redacted] on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service [redacted] cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are [redacted] positioned.

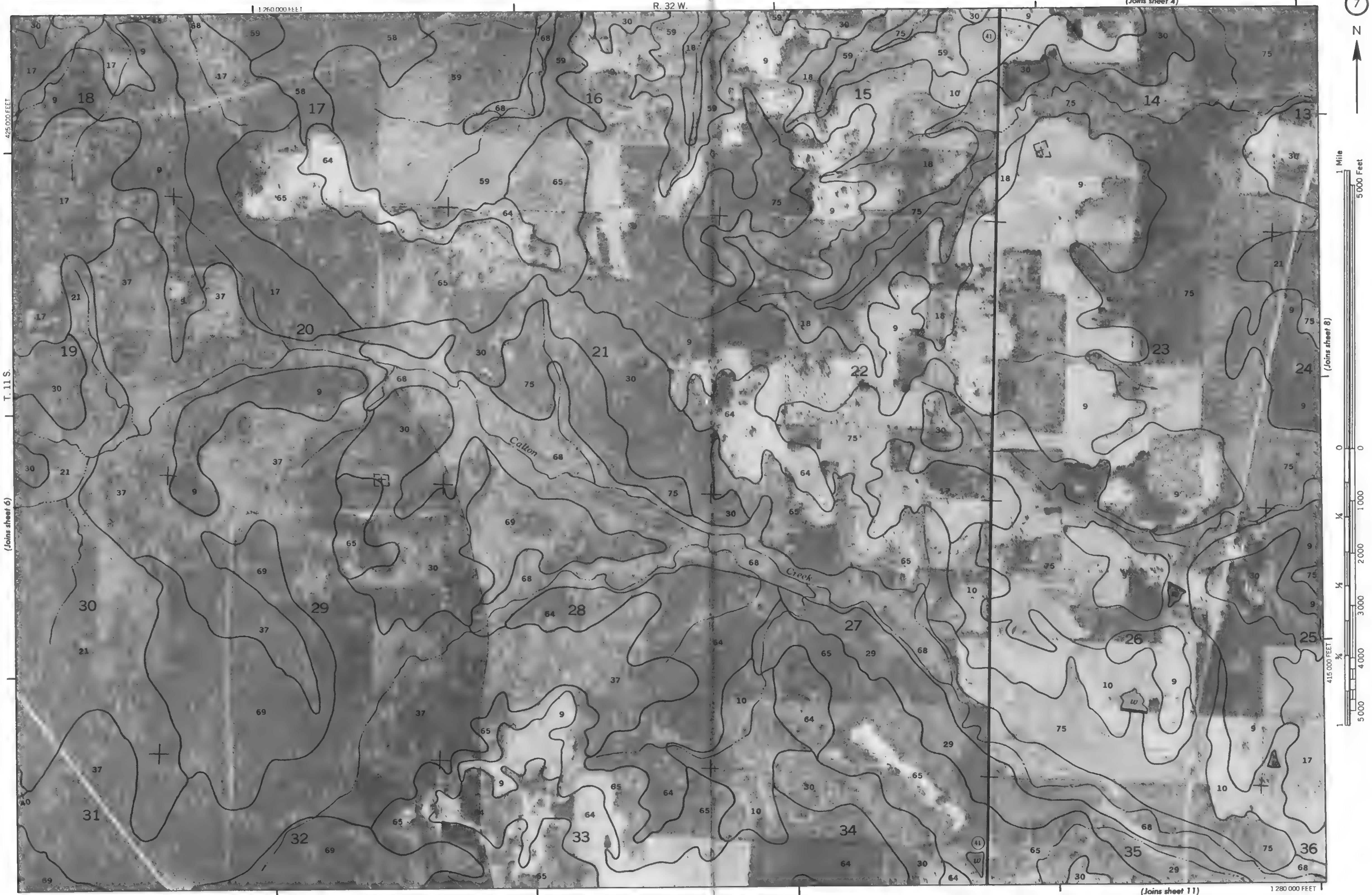
LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 4

"LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 5"

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



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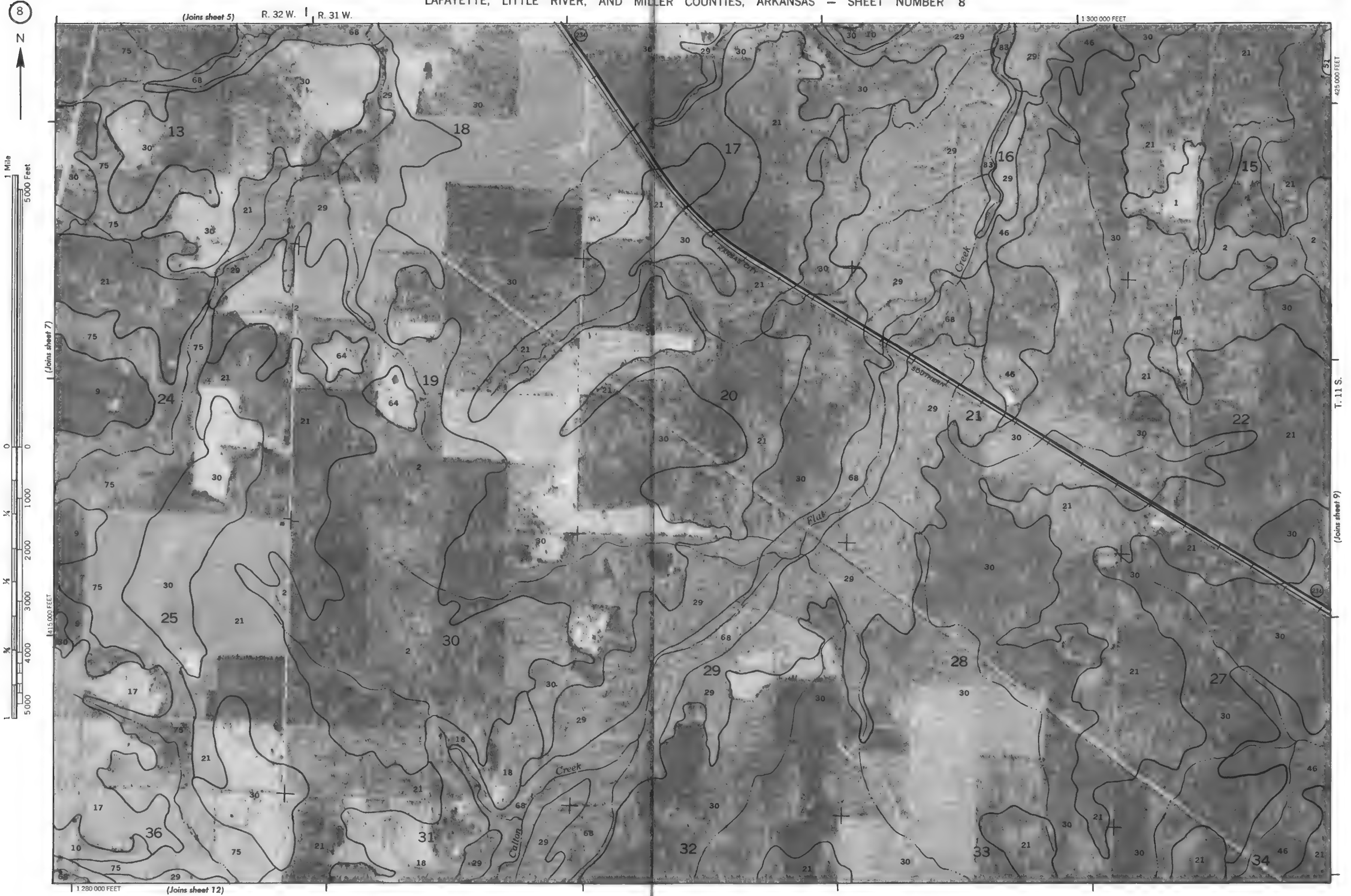
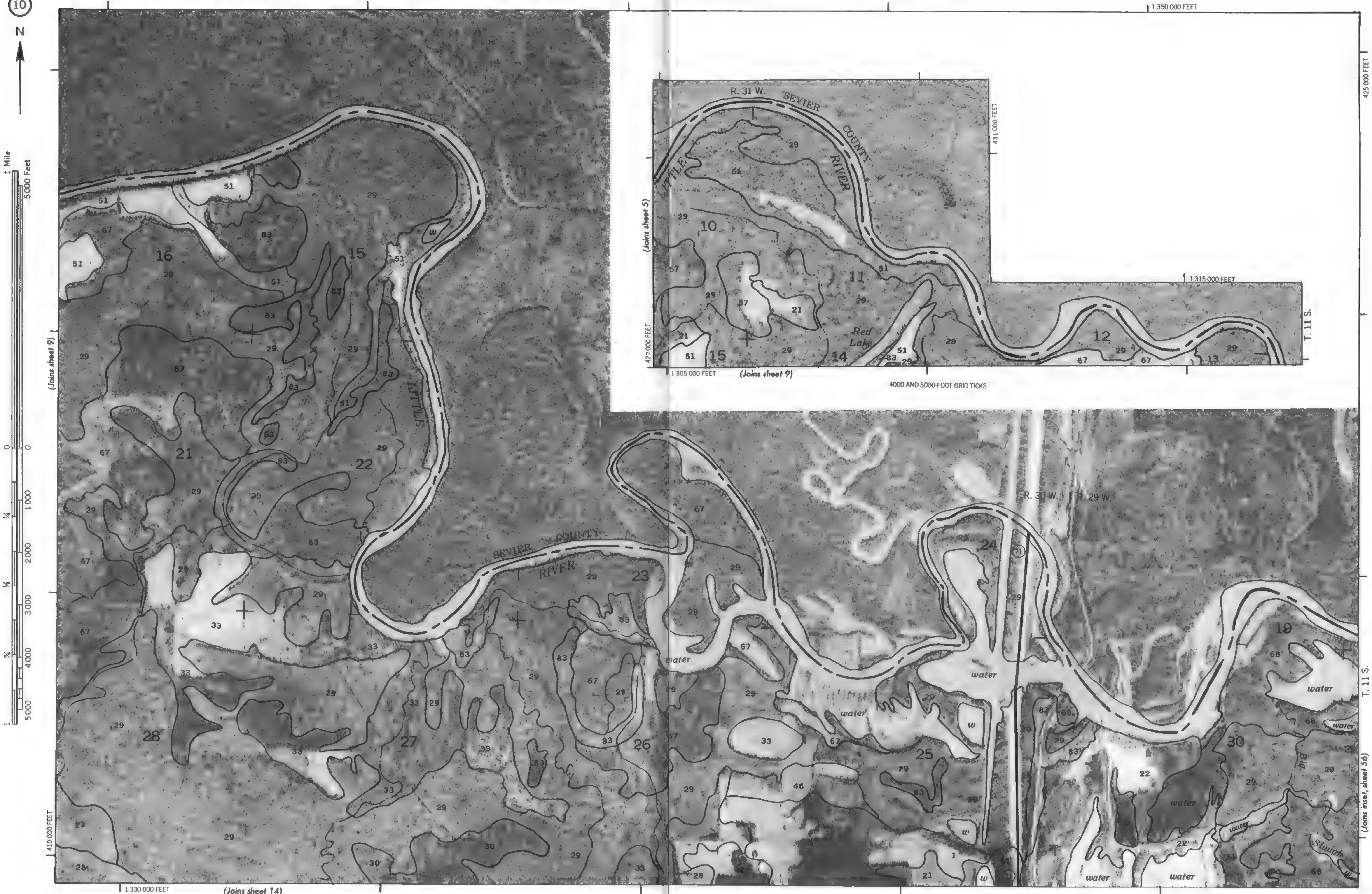


This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 8

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 10

This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 11

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LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 12

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 13

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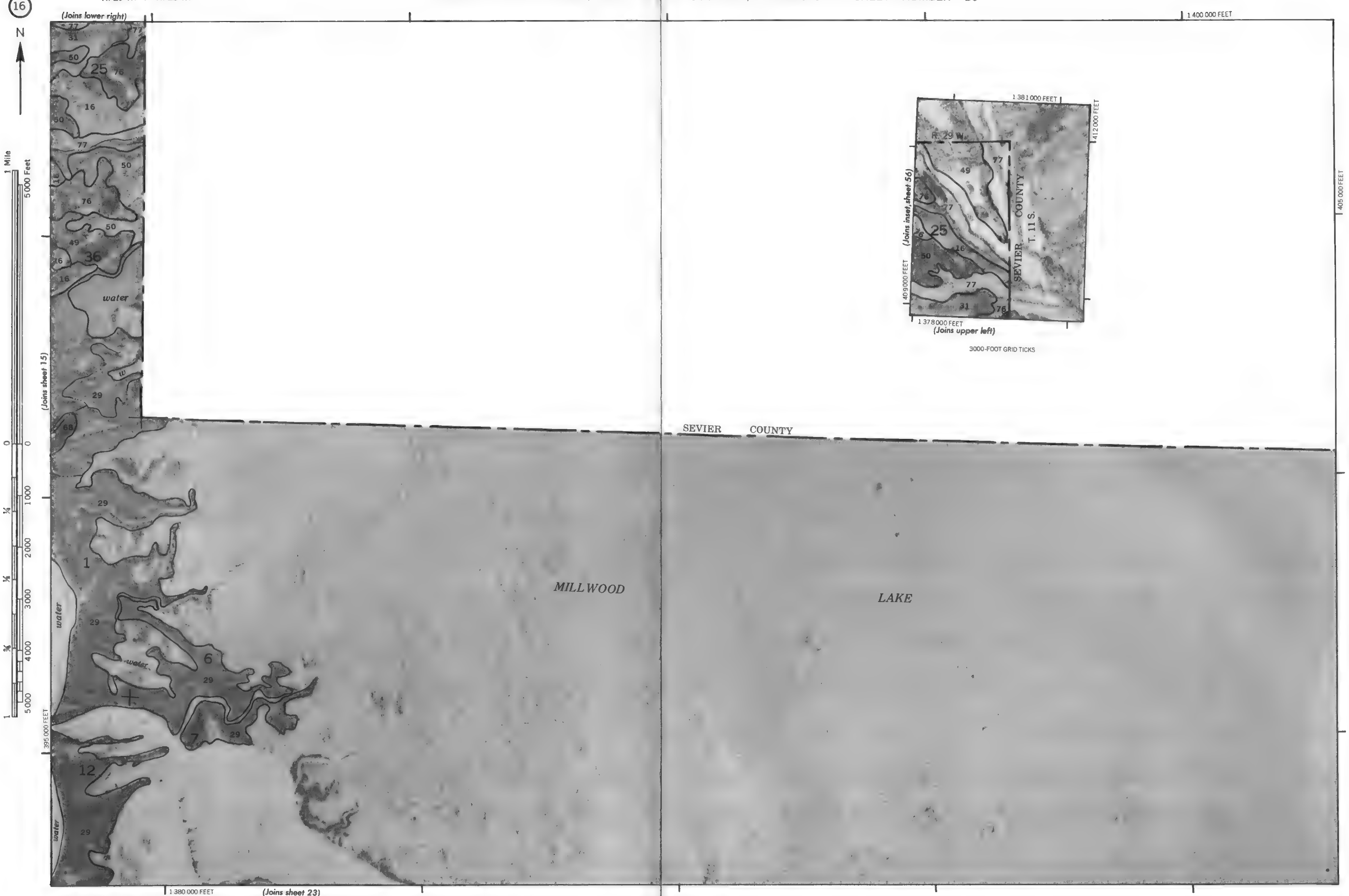
14
N
1 Mile
5000 Feet
0
1000
2000
3000
4000
5000
(Joins sheet 10)
(Joins sheet 13)
(Joins sheet 15)
(Joins sheet 21)
R. 30 W.
R. 29 W.
1 350 000 FEET
405 000 FEET
395 000 FEET
1 330 000 FEET
T. 12 S.
T. 11 S.
water
Creek
Lick
Wilton
KANSAS CITY
SOUTHERN
234
71
This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.
LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 14

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 15

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 17
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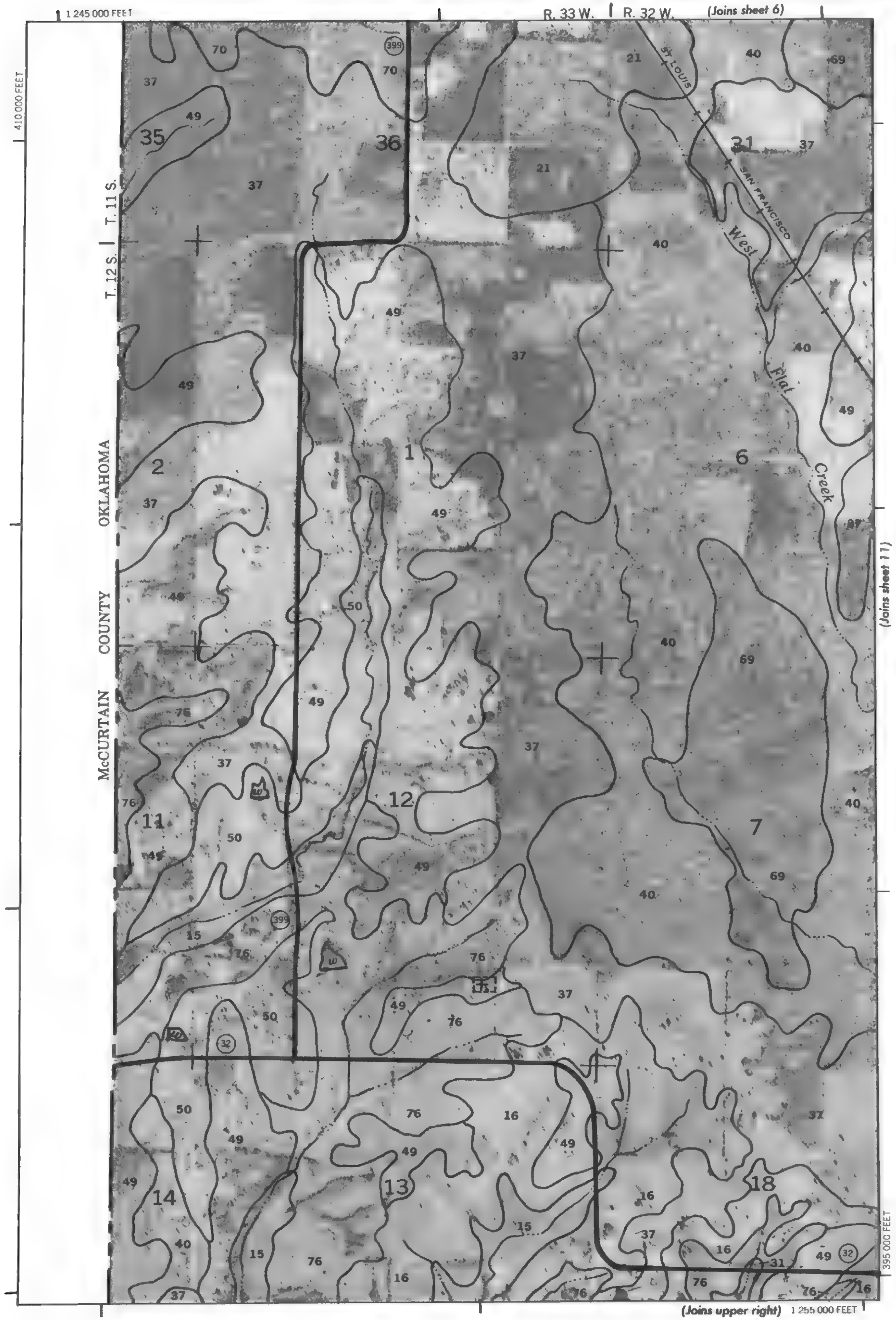

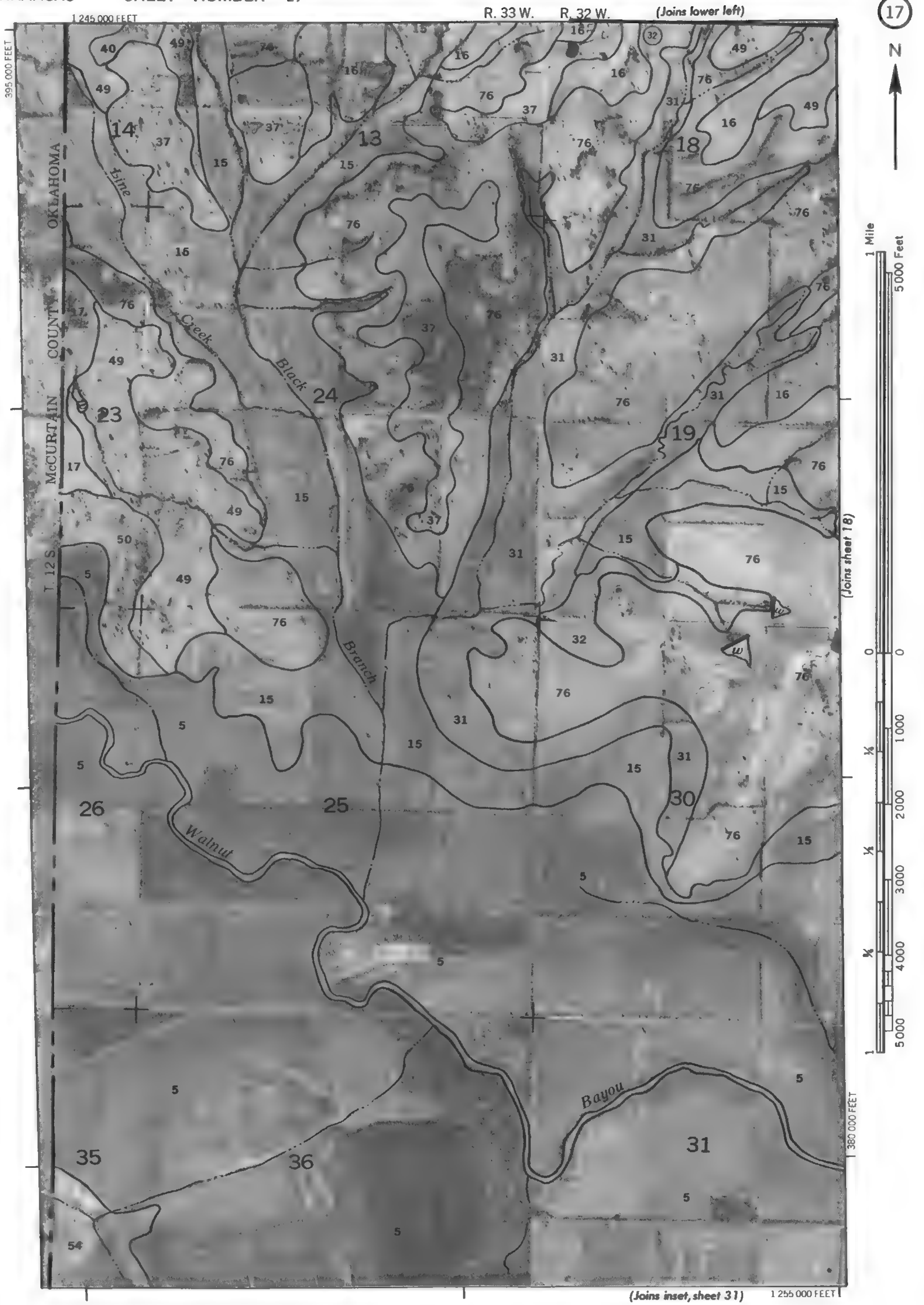

This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 18

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 19

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LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 21

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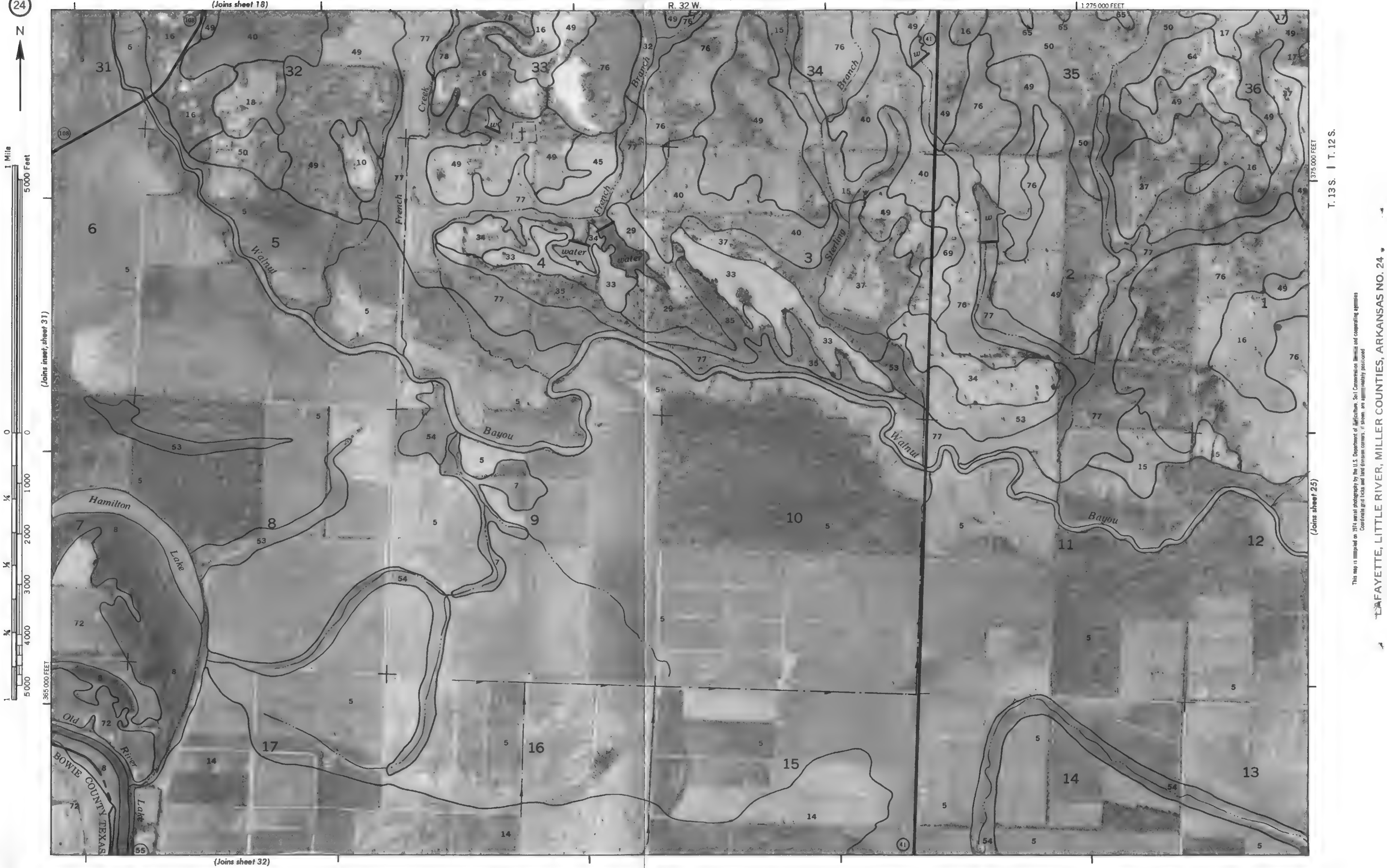
LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 23


24
N
(Joins sheet 18)
R. 32 W.
1 275 000 FEET
(Joins inset, sheet 31)
(Joins sheet 25)
(Joins sheet 32)
375 000 FEET
365 000 FEET
T. 13 S. | T. 12 S.
1 Mile
5000 Feet
0 1000 2000 3000 4000 5000
Walnut
Bayou
French Creek
French Branch
Sterling Branch
Hamilton Lake
Old River
Lake
water
BOWIE COUNTY TEXAS
LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 24

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 25
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LAFAYETTE, LITTLE RIVER, AND MILLER COUNTIES, ARKANSAS — SHEET NUMBER 26

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LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 26

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 27

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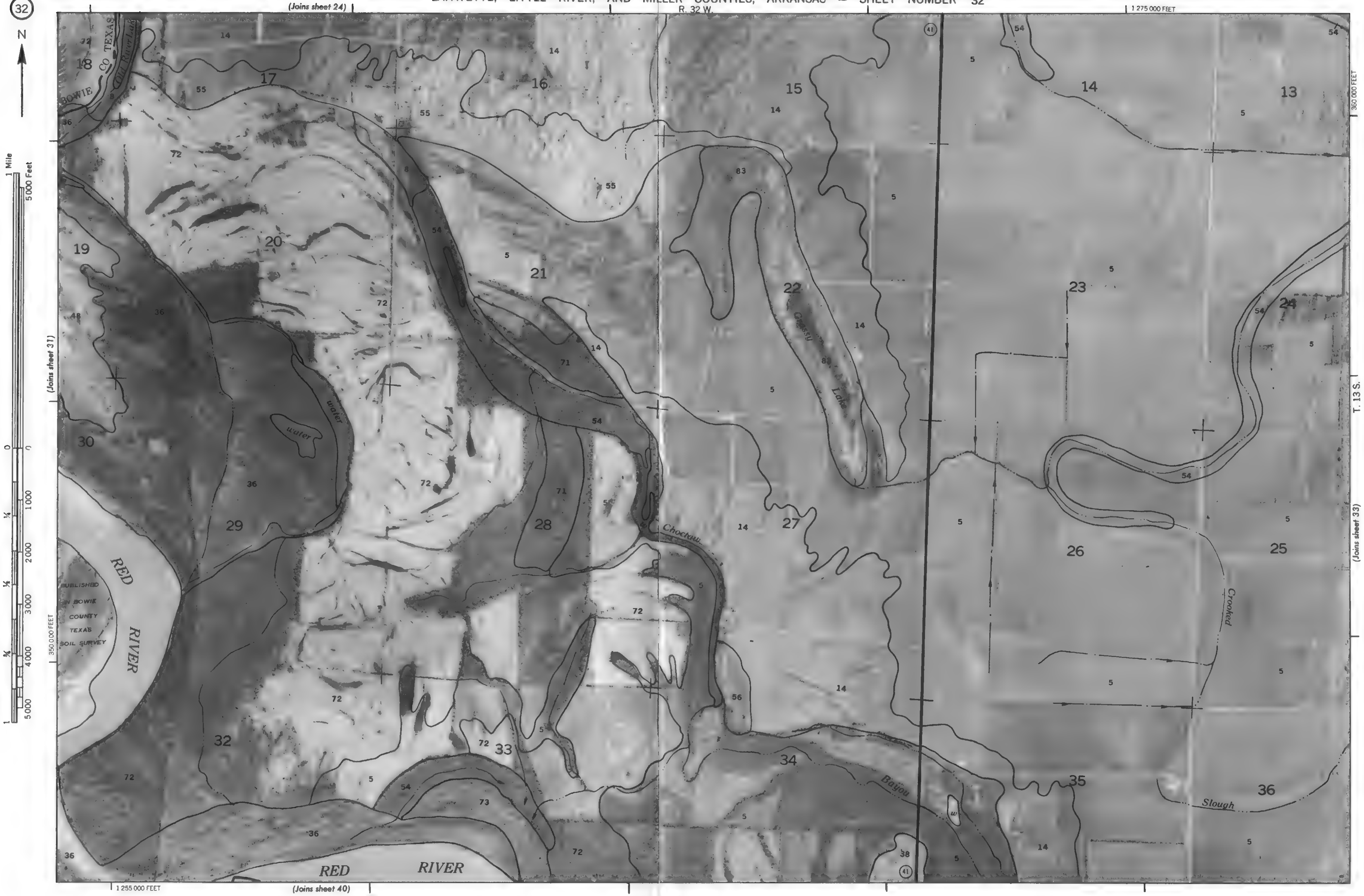
LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 28

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies
Coordinate grid ticks and land division corners, if shown, are approximately positioned

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 30

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



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LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 32

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 33
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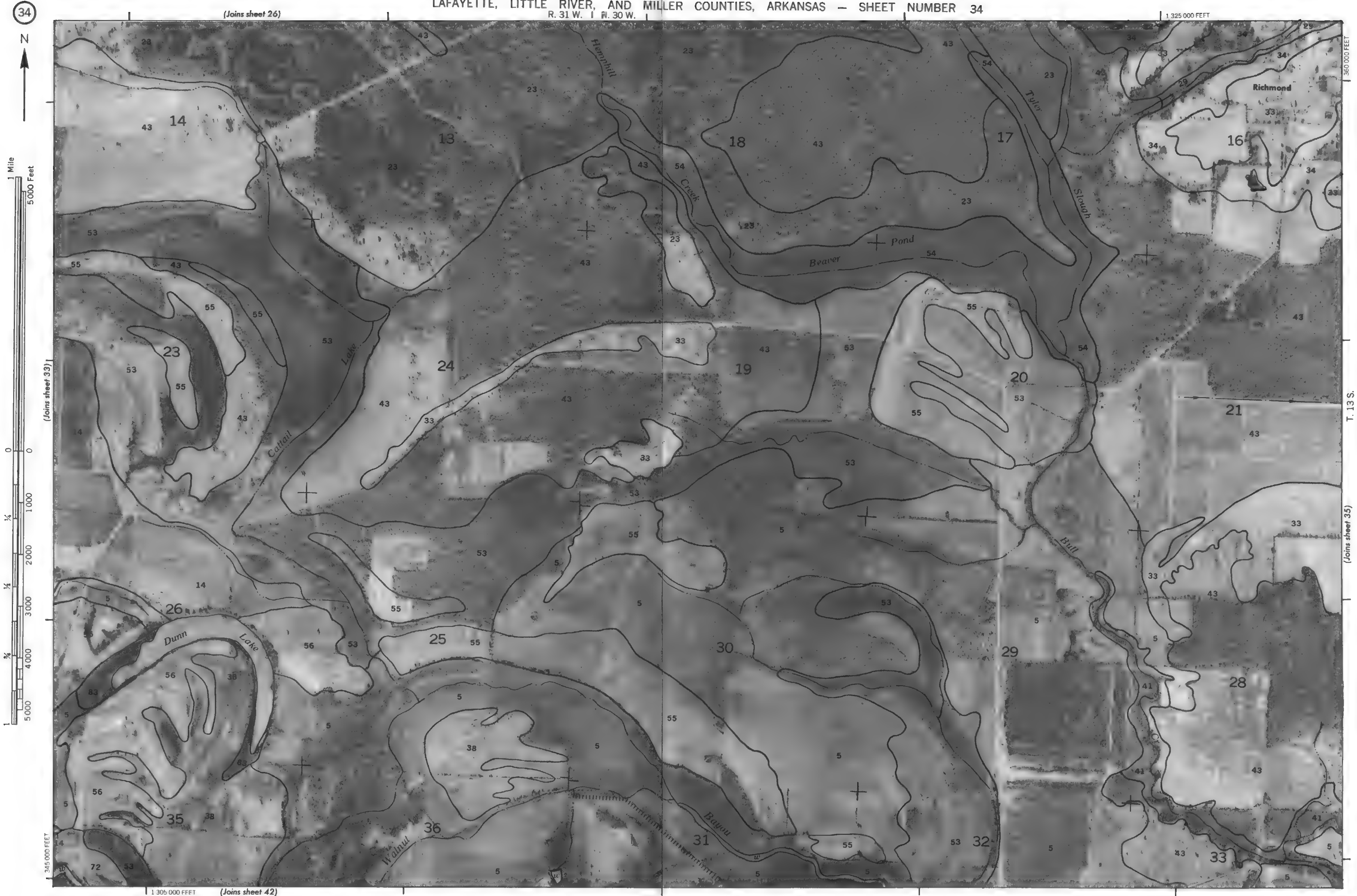

This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 35

LAFAYETTE, LITTLE RIVER, AND MILLER COUNTIES, ARKANSAS — SHEET NUMBER 36

This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 36


37
R. 29 W.
R. 28 W.
1 380 000 FEET
(Joins sheet 29)
350 000 FEET
T. 13 S.
(Joins sheet 36)
(Joins sheet 38)
(Joins sheet 45)
1 400 000 FEET
345 000 FEET
N
1 Mile
5000 Feet
Hudson Creek
Hudson Creek
Bois d'Arc Bayou
This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

N

1 Mile

5000 Feet

(Joins sheet 30)

R. 28 W. | R. 27 W.

1 425 000 FEET

(Joins sheet 37)

355 000 FEET

T. 13 S.

(Joins sheet 39)

345 000 FEET

(Joins sheet 46)

1 405 000 FEET

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
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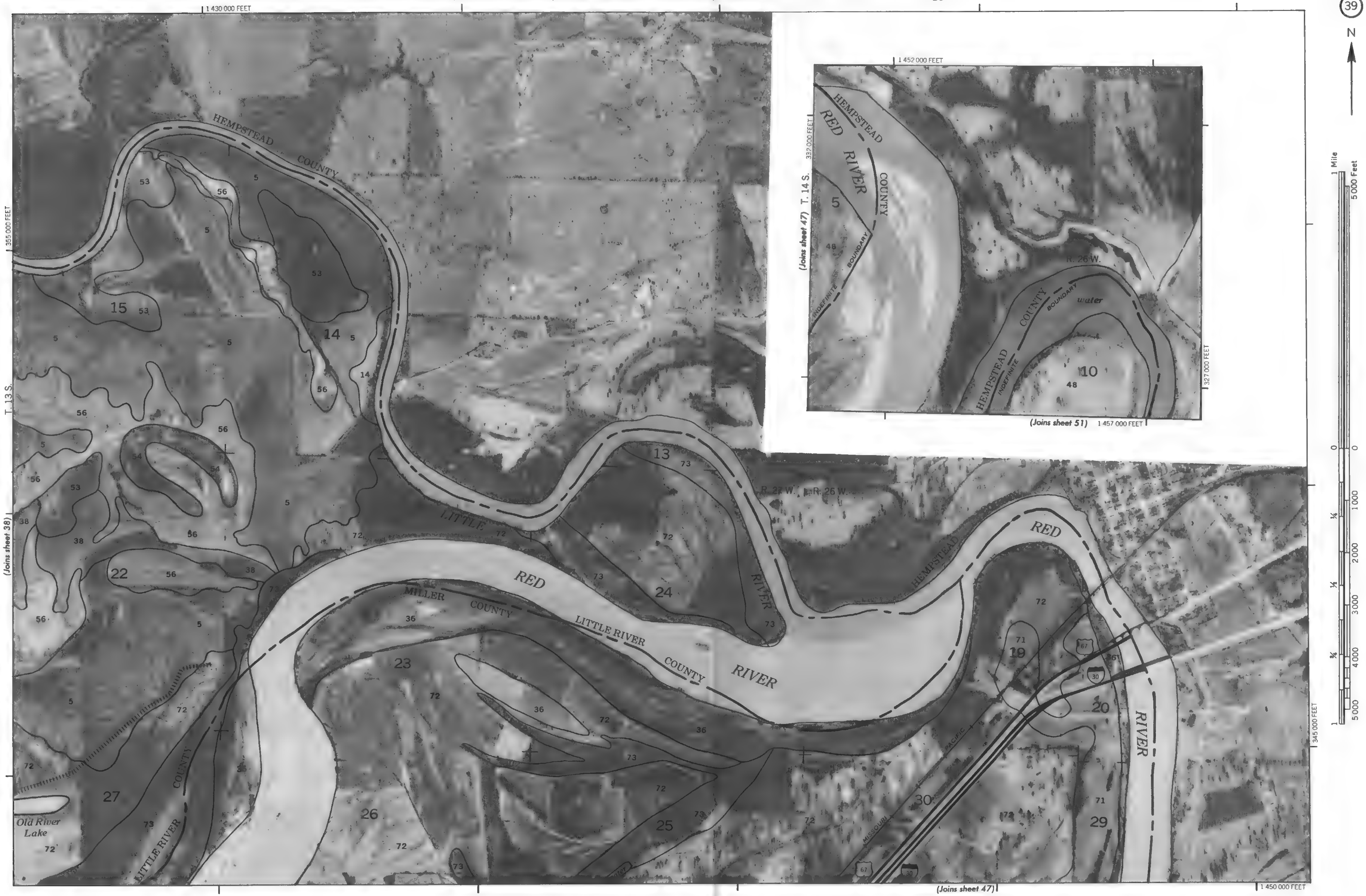

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 39
This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 40

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LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 41

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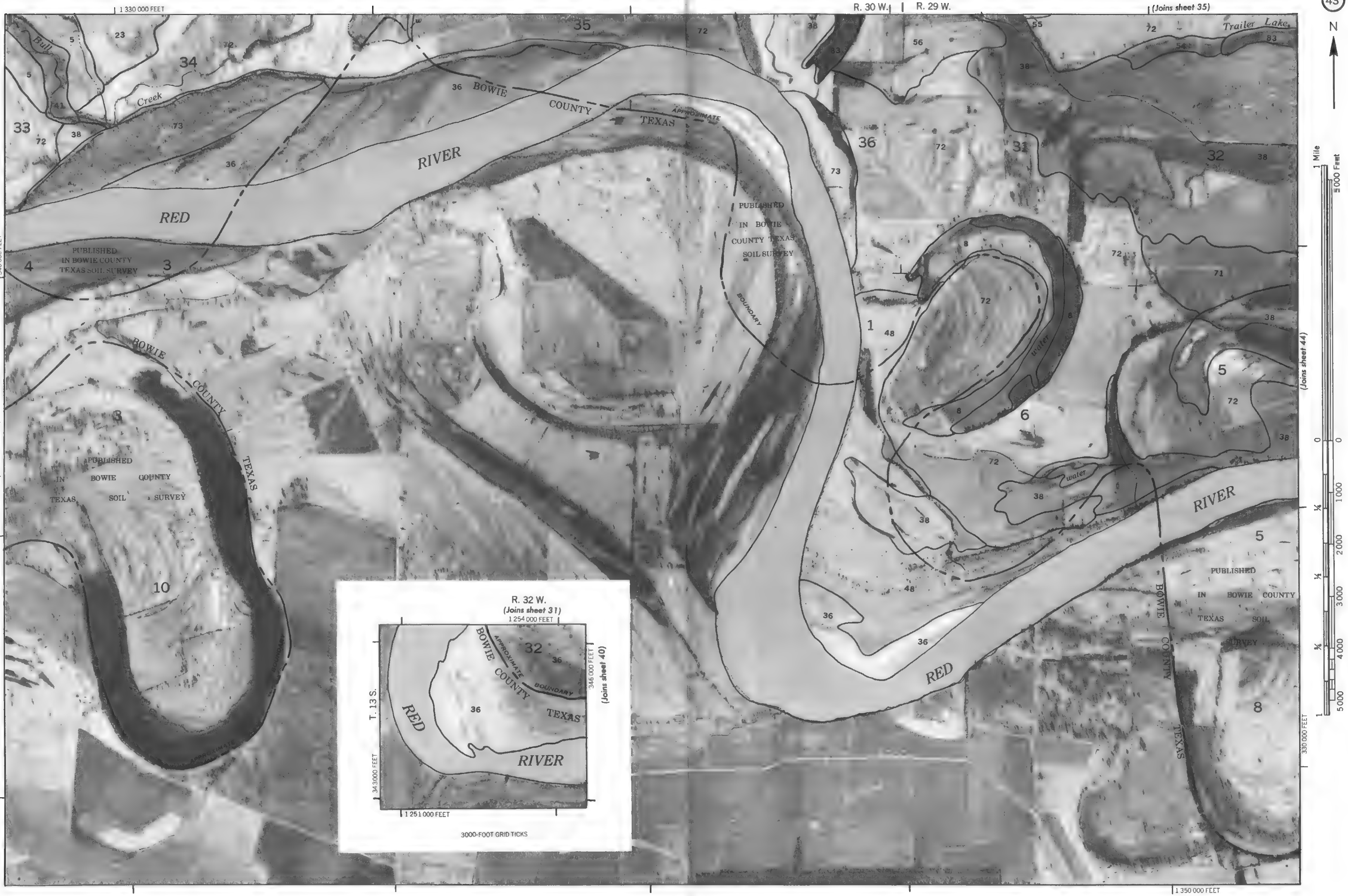
LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 42



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LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 44

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LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 45

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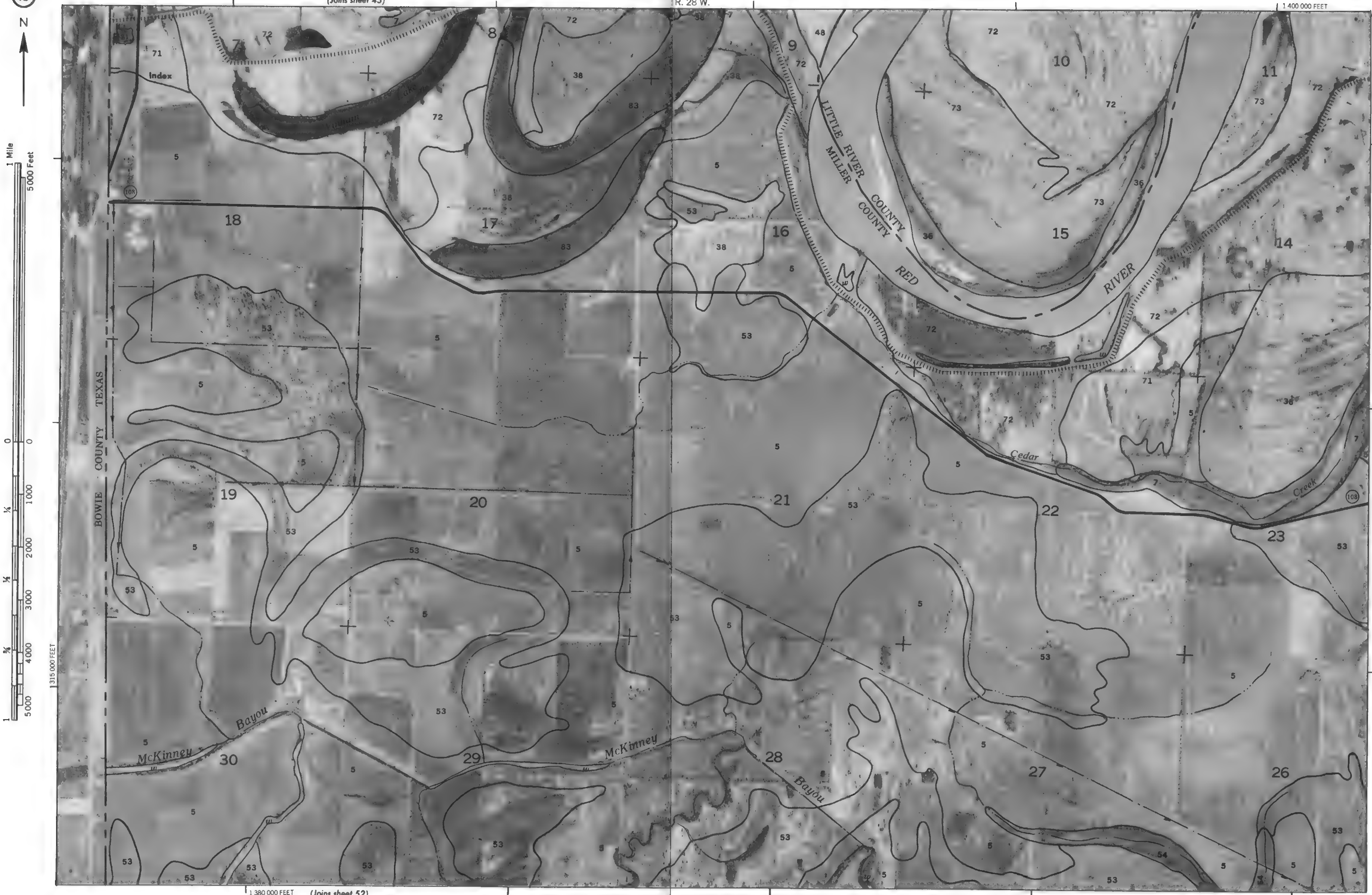
N

1 Mile
5000 Feet

This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

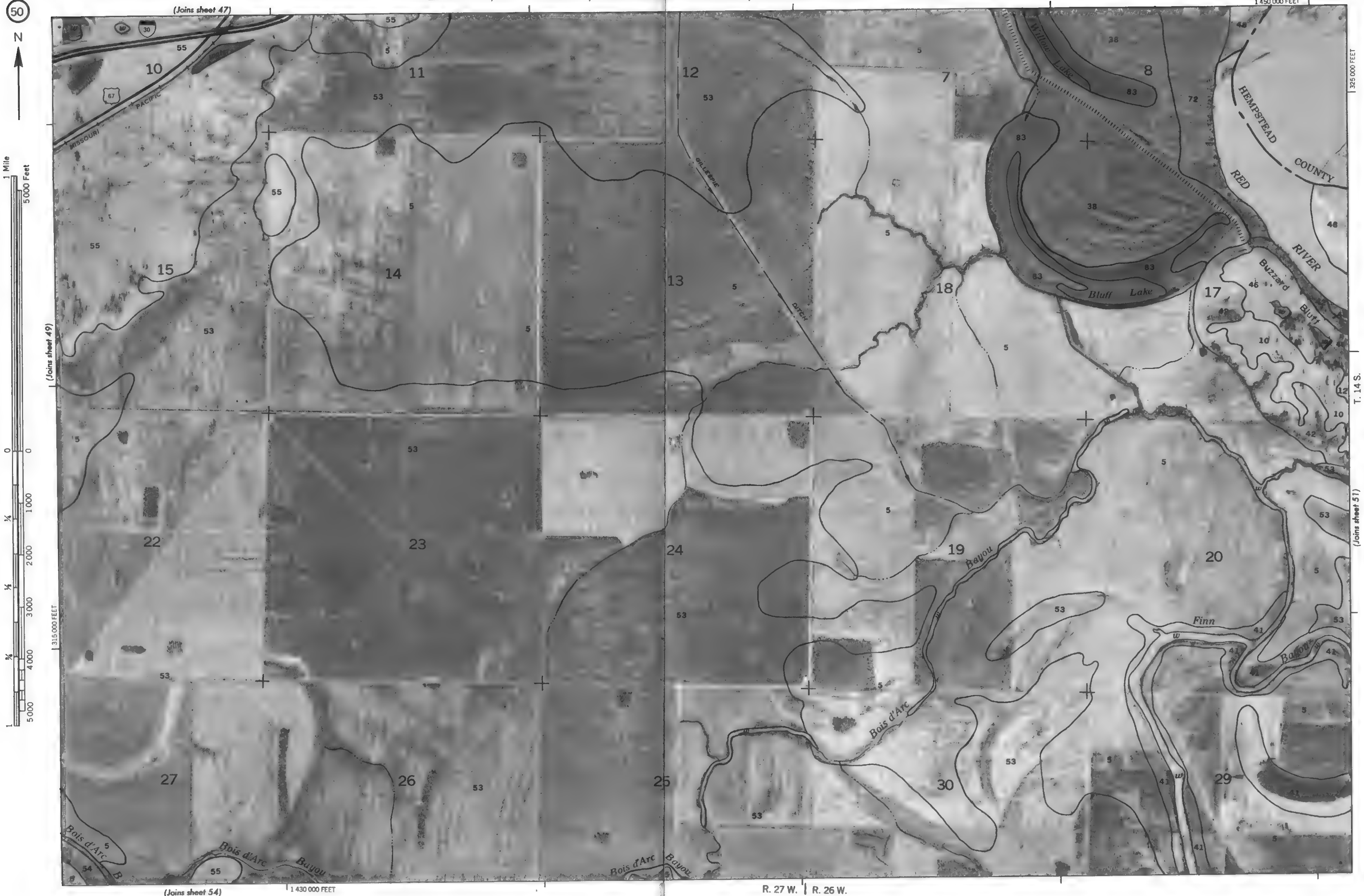
LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 47

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This map is compiled on 1974 aerial [redacted] by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are [redacted] positioned.

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 50

51

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 51

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 52

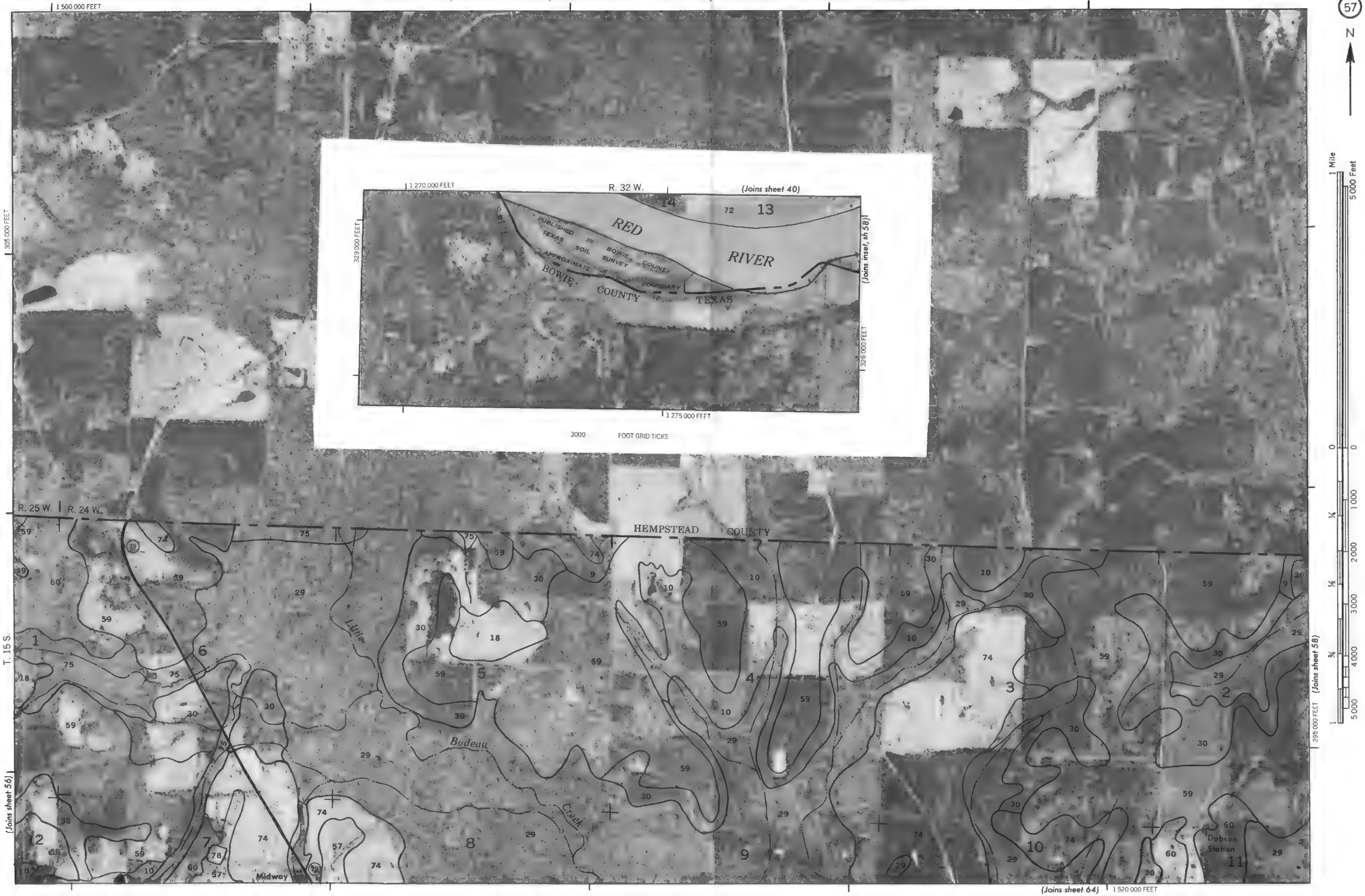
LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 53

This map is compiled on 1974 aerial [illegible] by the U.S. Depar[illegible] of Agric[illegible], Soil Conser[illegible] Service [illegible] cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 54

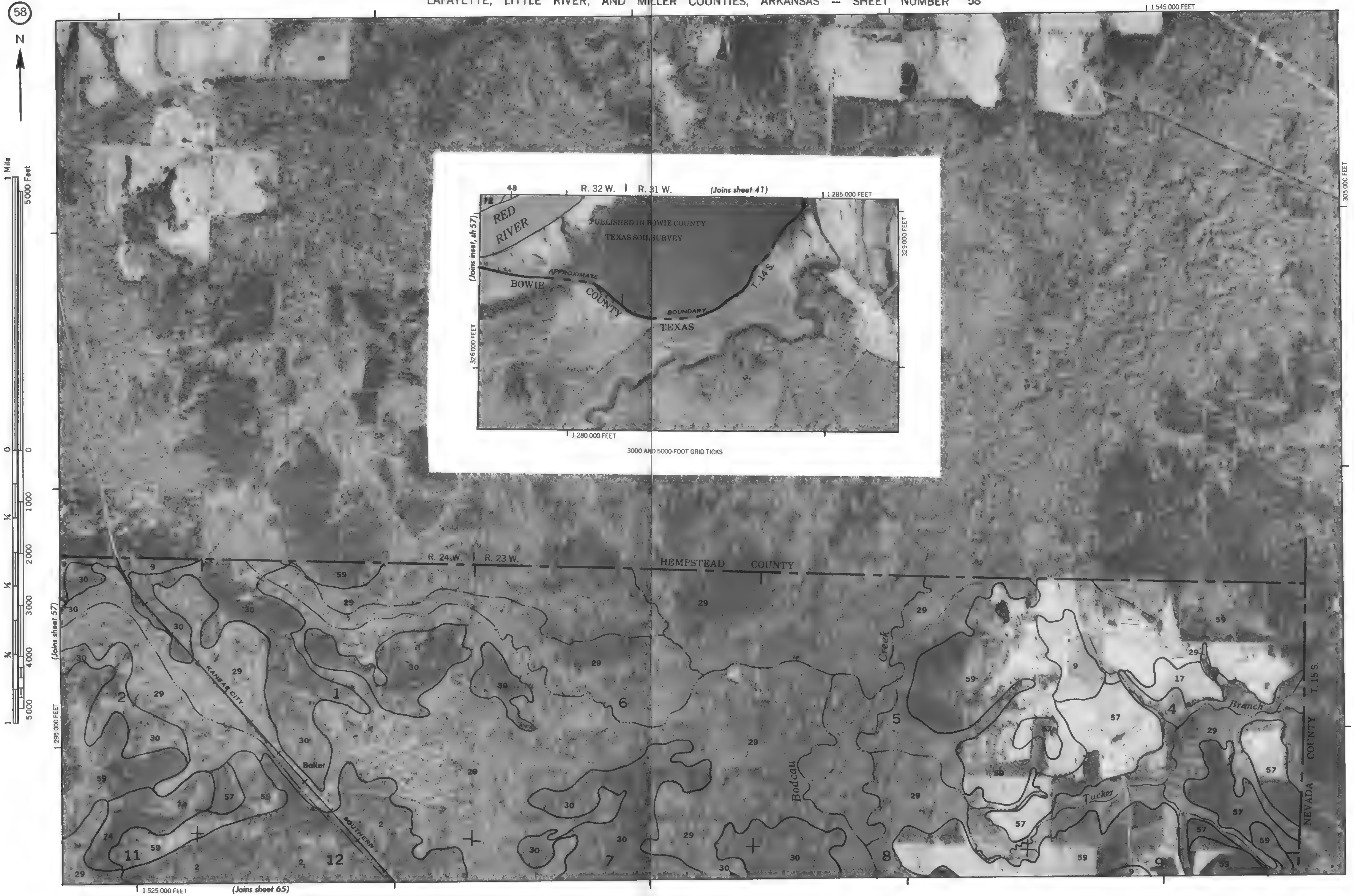

55
N
(Joins sheet 51)
1 455 000 FEET
310 000 FEET
(Joins sheet 54)
(Joins sheet 56)
(Joins sheet 62)
1 470 000 FEET
295 000 FEET
R. 26 W. | R. 25 W.
T. 14 S.
T. 15 S.
RED RIVER
HEMPSTEAD COUNTY BOUNDARY
INDEFINITE
LAFAYETTE COUNTY
MILLER COUNTY
East Old River Lake
Second Old River Lake
Red Lake
Red Chute
Finn Bayou
Hervey
296
LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 55


56
N
1 Mile
5000 Feet
0
1000
2000
3000
4000
5000
T. 11 S.
(Joins sheet 10)
LITTLE RIVER
SEVIER COUNTY
Grassy Lake
Big Slough
Trout Lake
Blacks Br.
R. 29 W.
(Joins inset, sheet 16)
(Joins sheet 15)
1 375 000 FEET
415 000 FEET
410 000 FEET
1 355 000 FEET
water
(sh 55)
R. 25 W.
HEMPSTEAD COUNTY
MILLER
LAFAYETTE
RED RIVER
(Joins sheet 55)
(Joins sheet 57)
(Joins sheet 63)
Lake
FIELD BAYOU
T. 15 S.
1 495 000 FEET
300 000 FEET
295 000 FEET
1 475 000 FEET

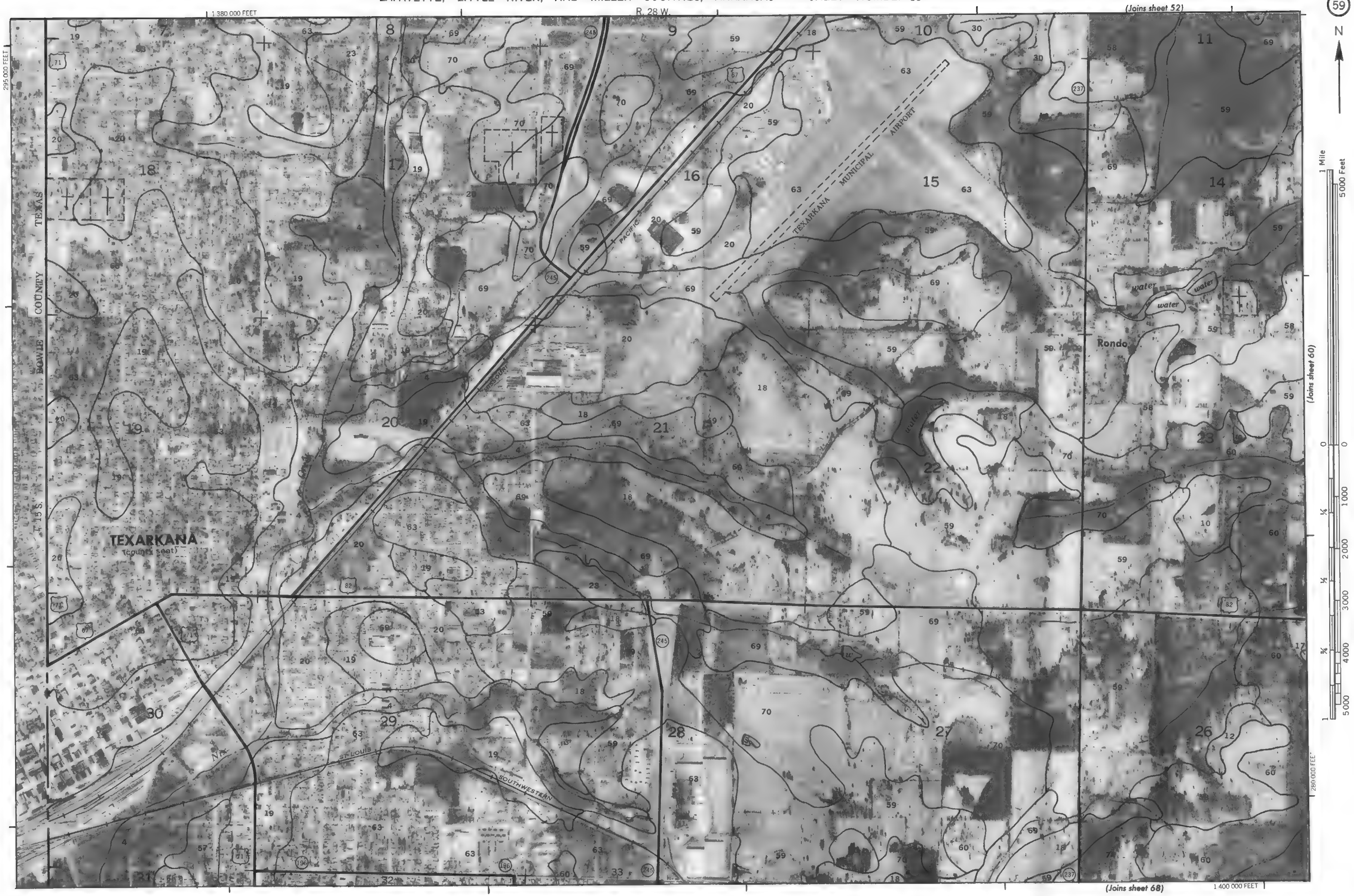


LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 57

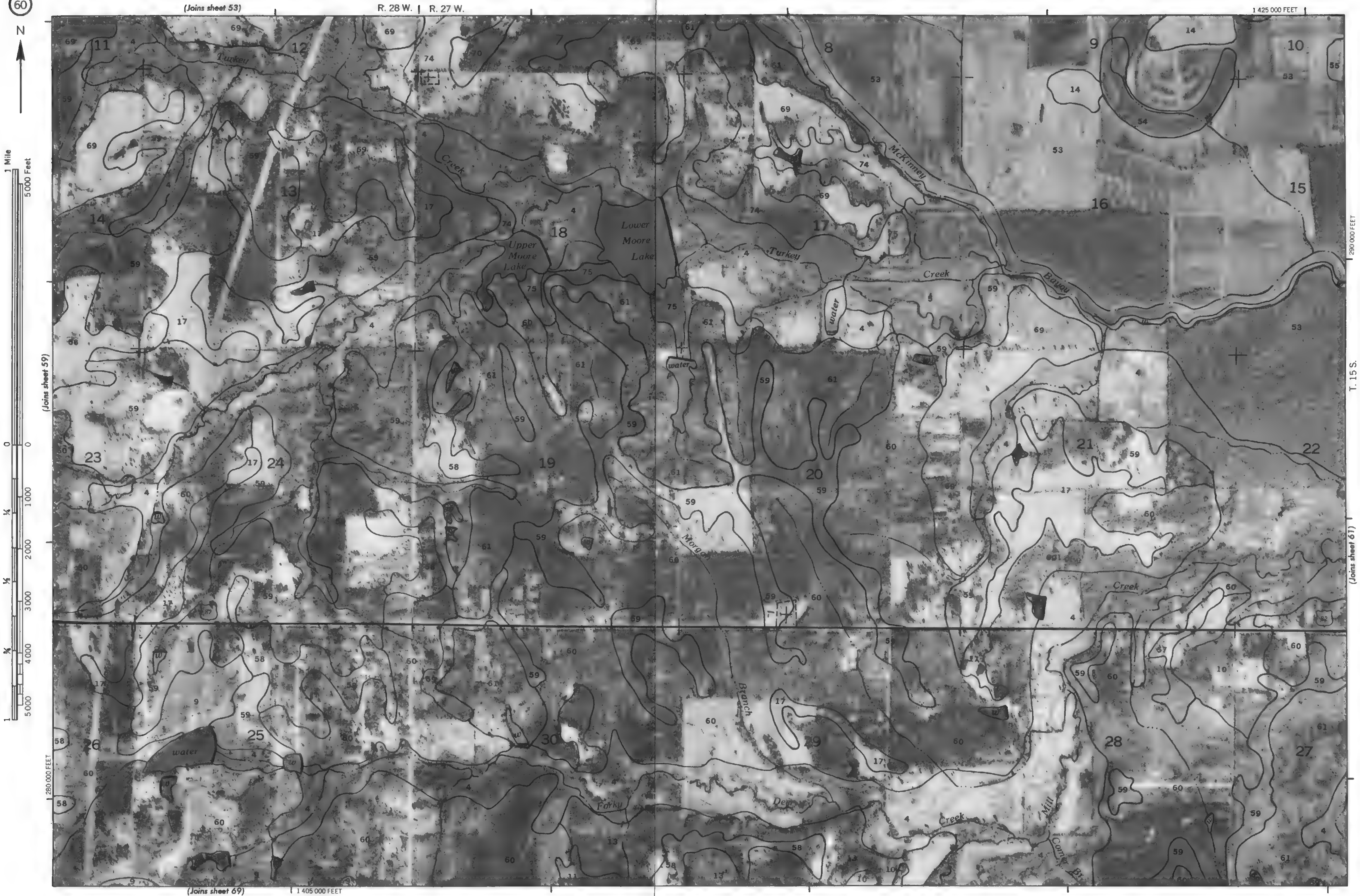
This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies
Coordinate grid ticks and land division corners, if shown, are approximately positioned



This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

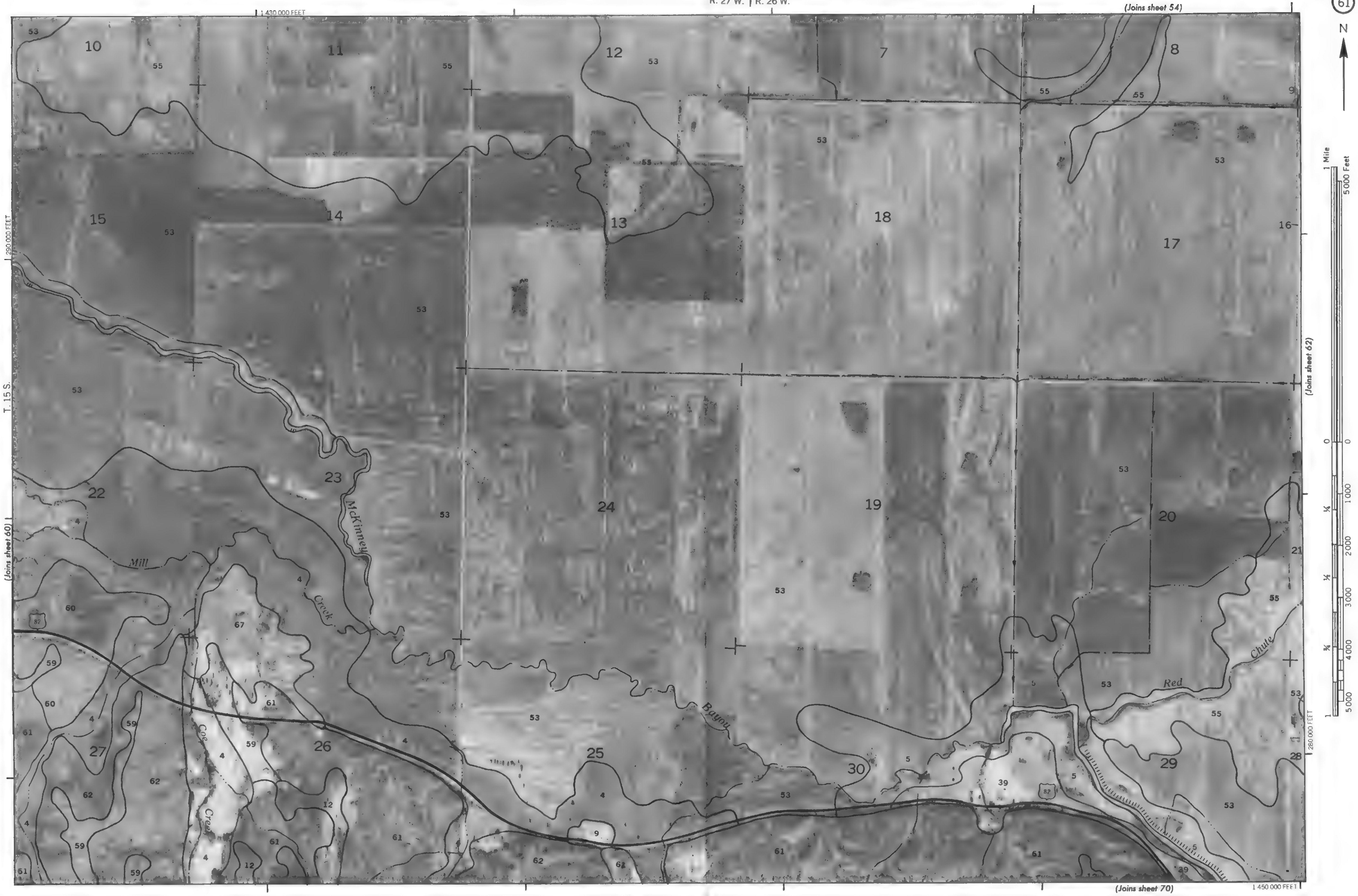


This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned

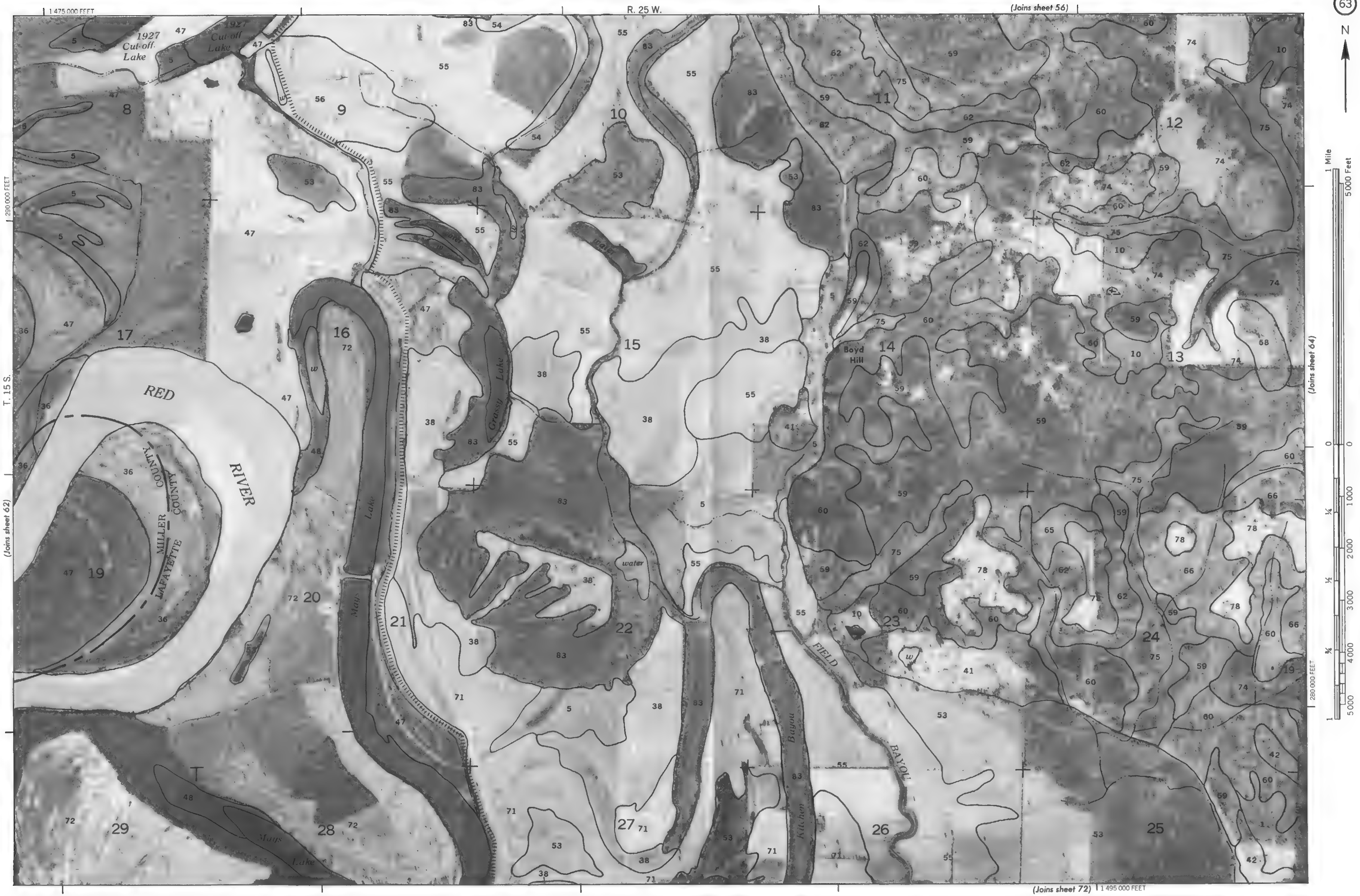
LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 60



LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 61
This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

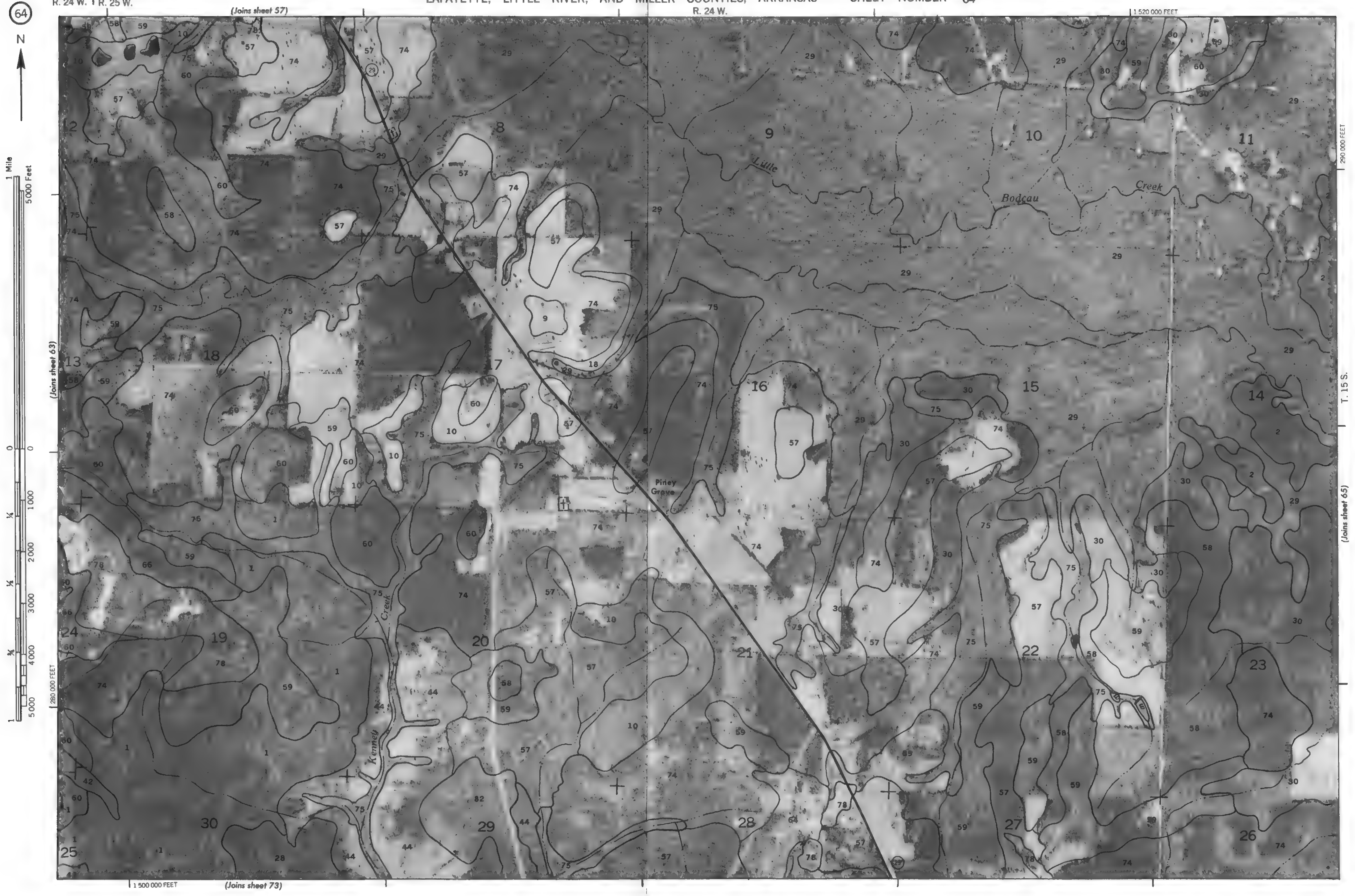
This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 62



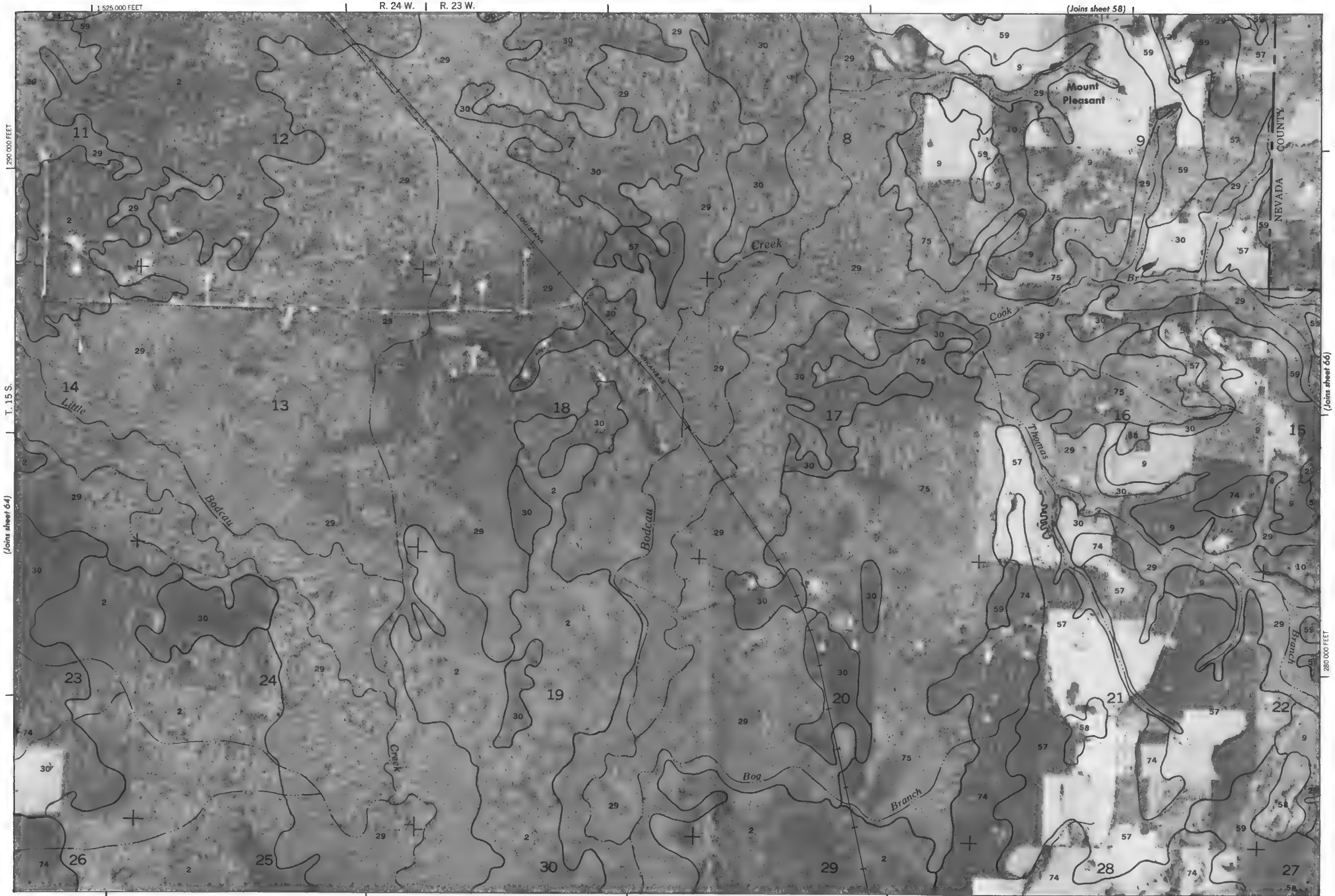
LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 63

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned



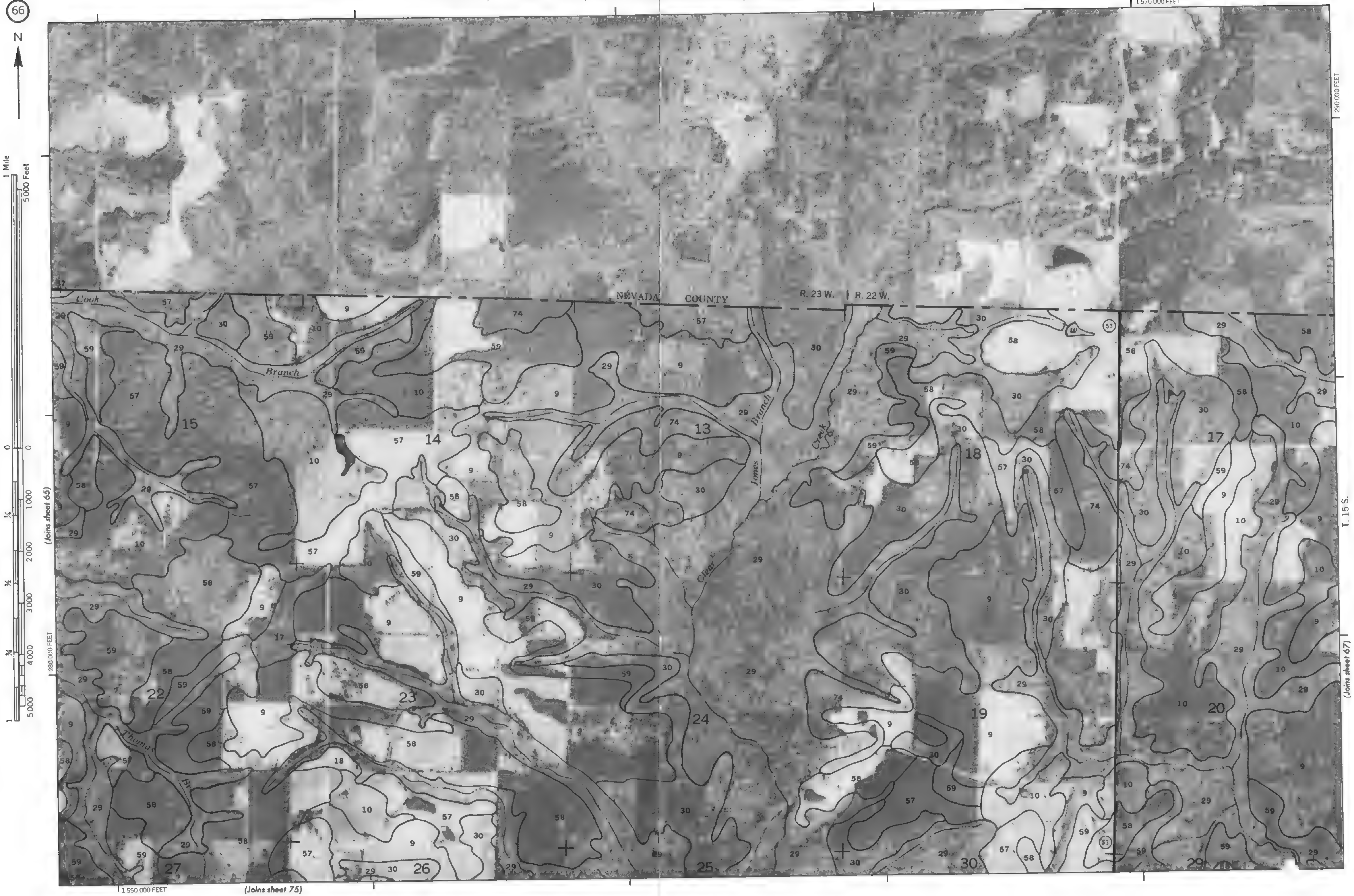
This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

65

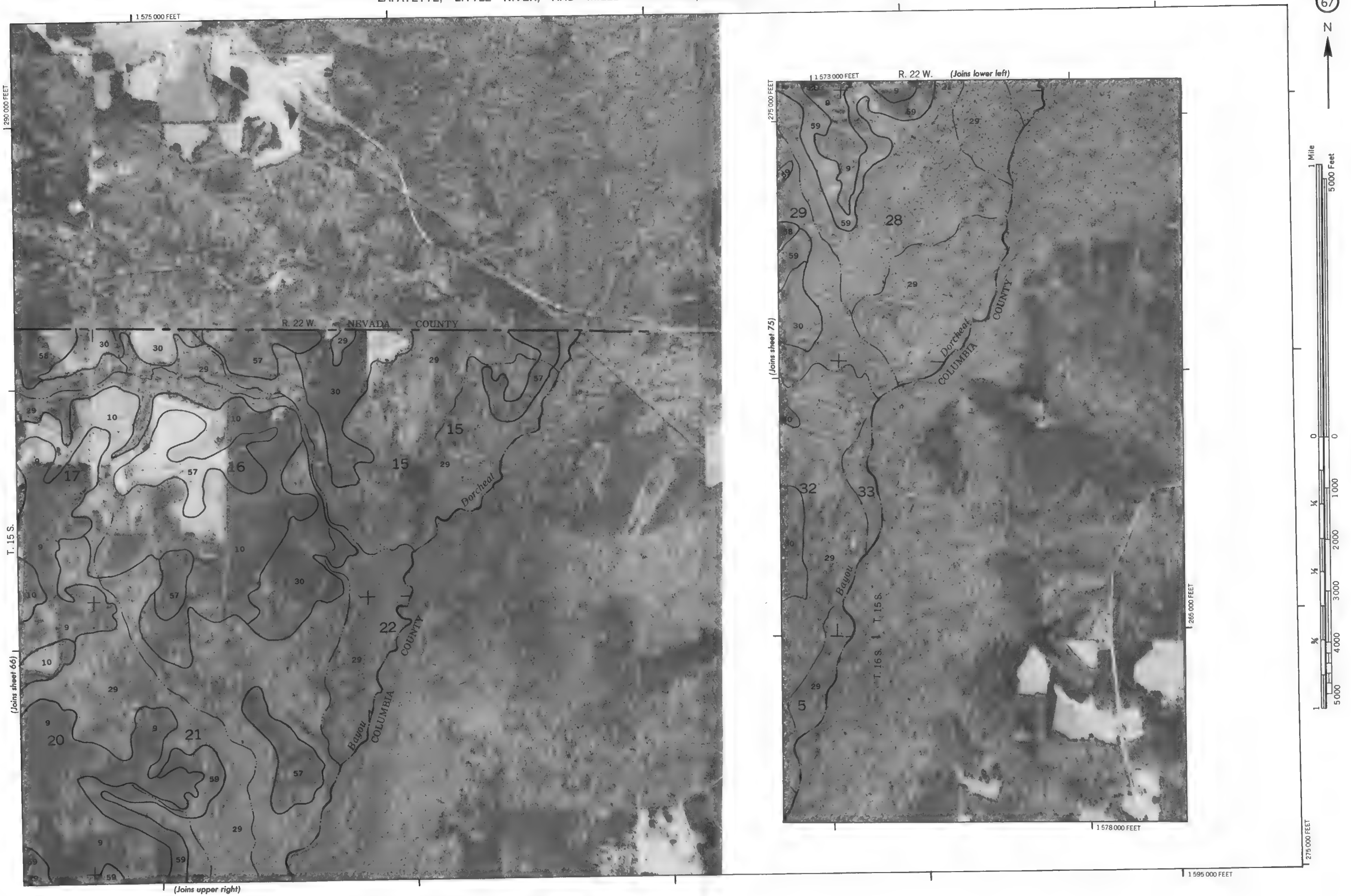


LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 65

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



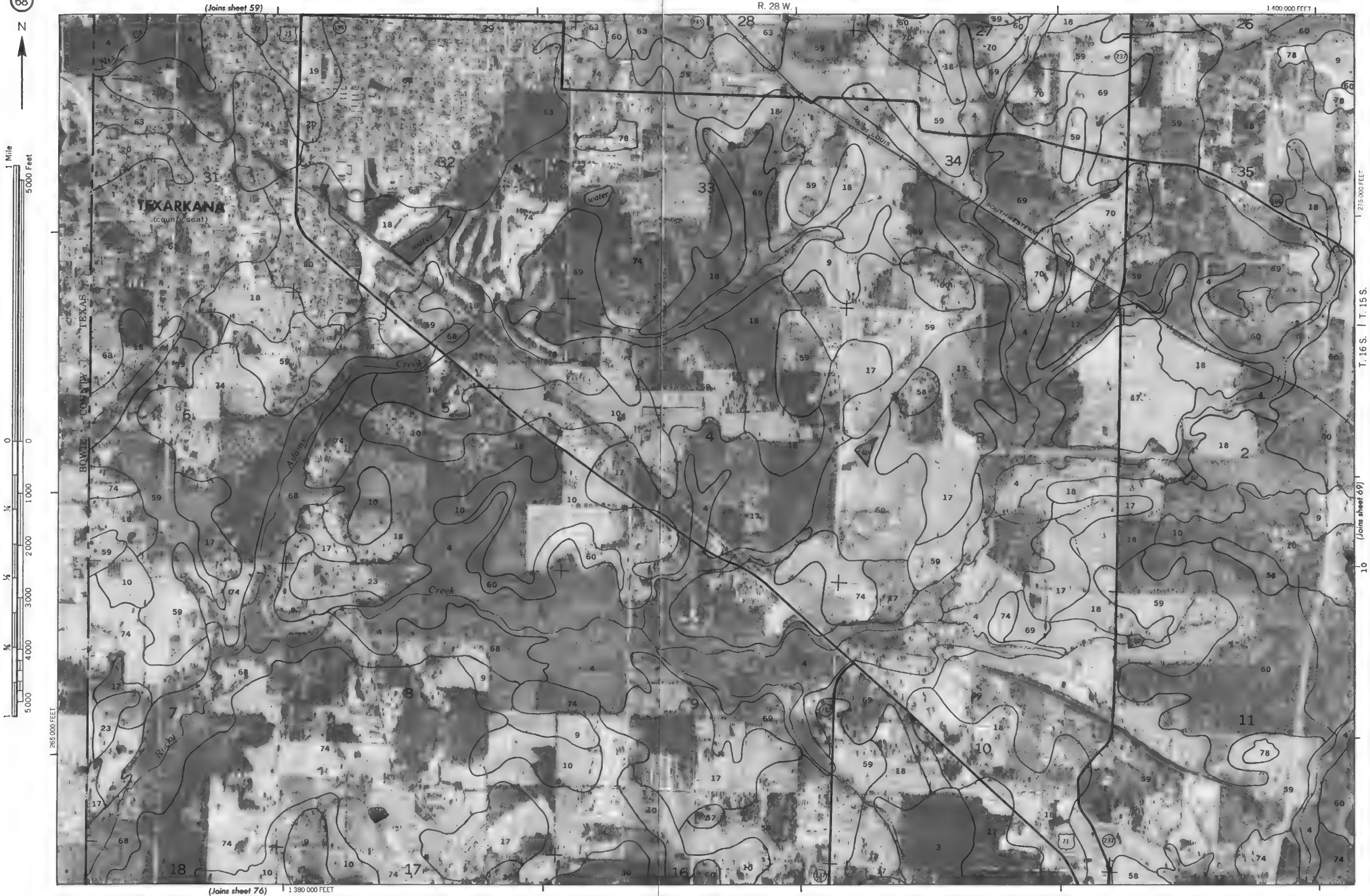
This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 67

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, AND MILLER COUNTIES, ARKANSAS — SHEET NUMBER 68

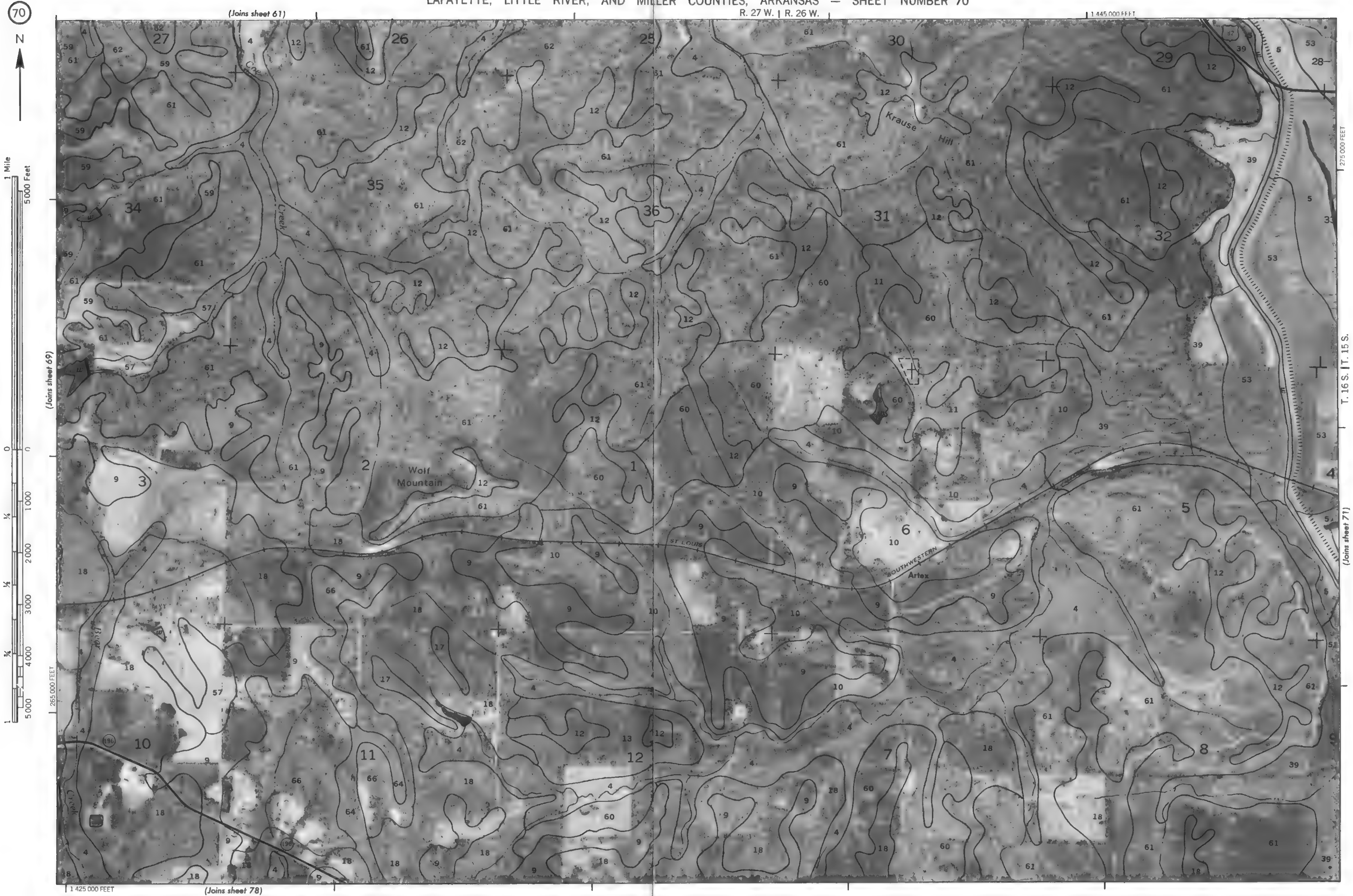


This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

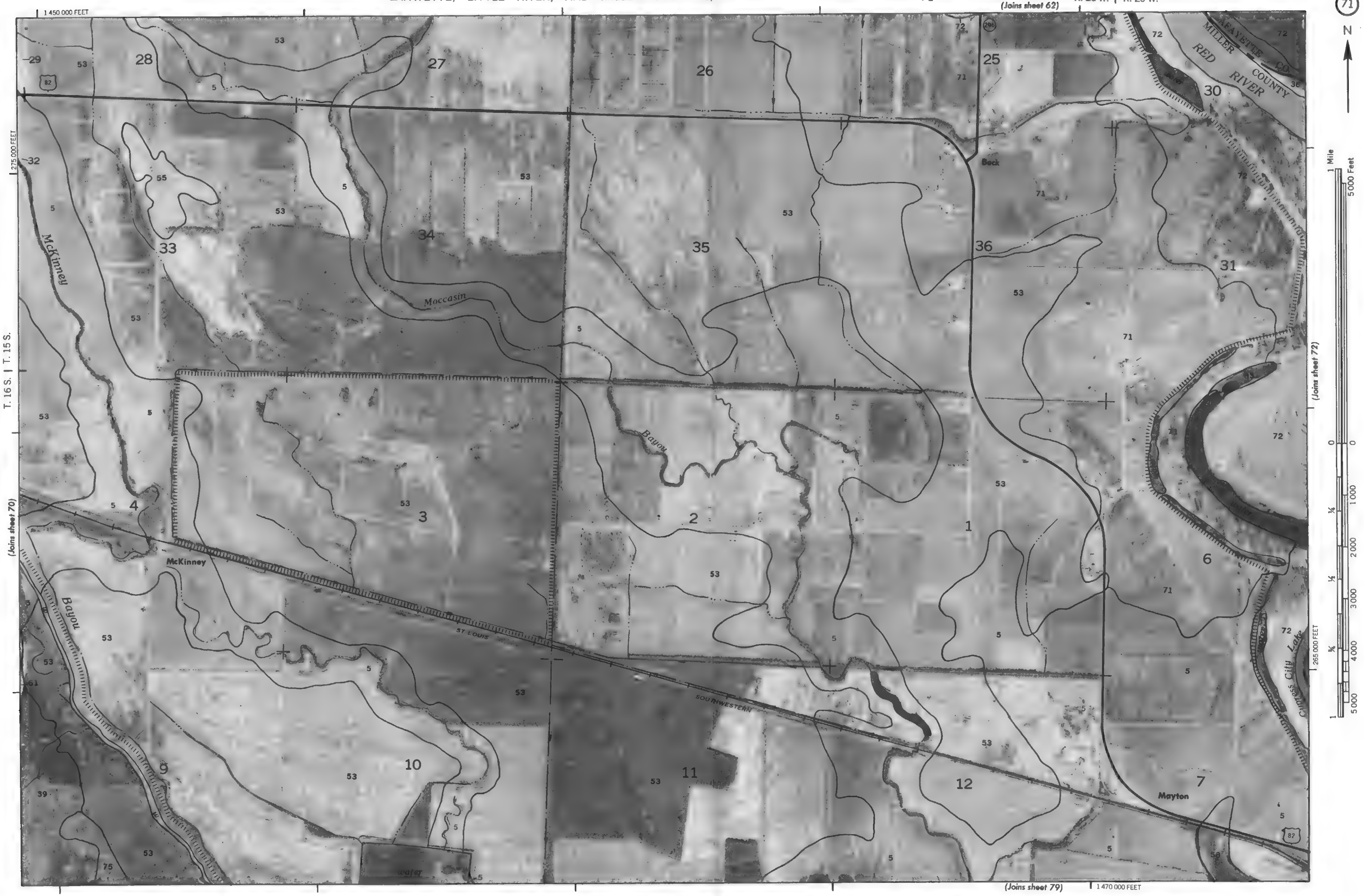
LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 68

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 69

This map is compiled on 1974 aerial [redacted] by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

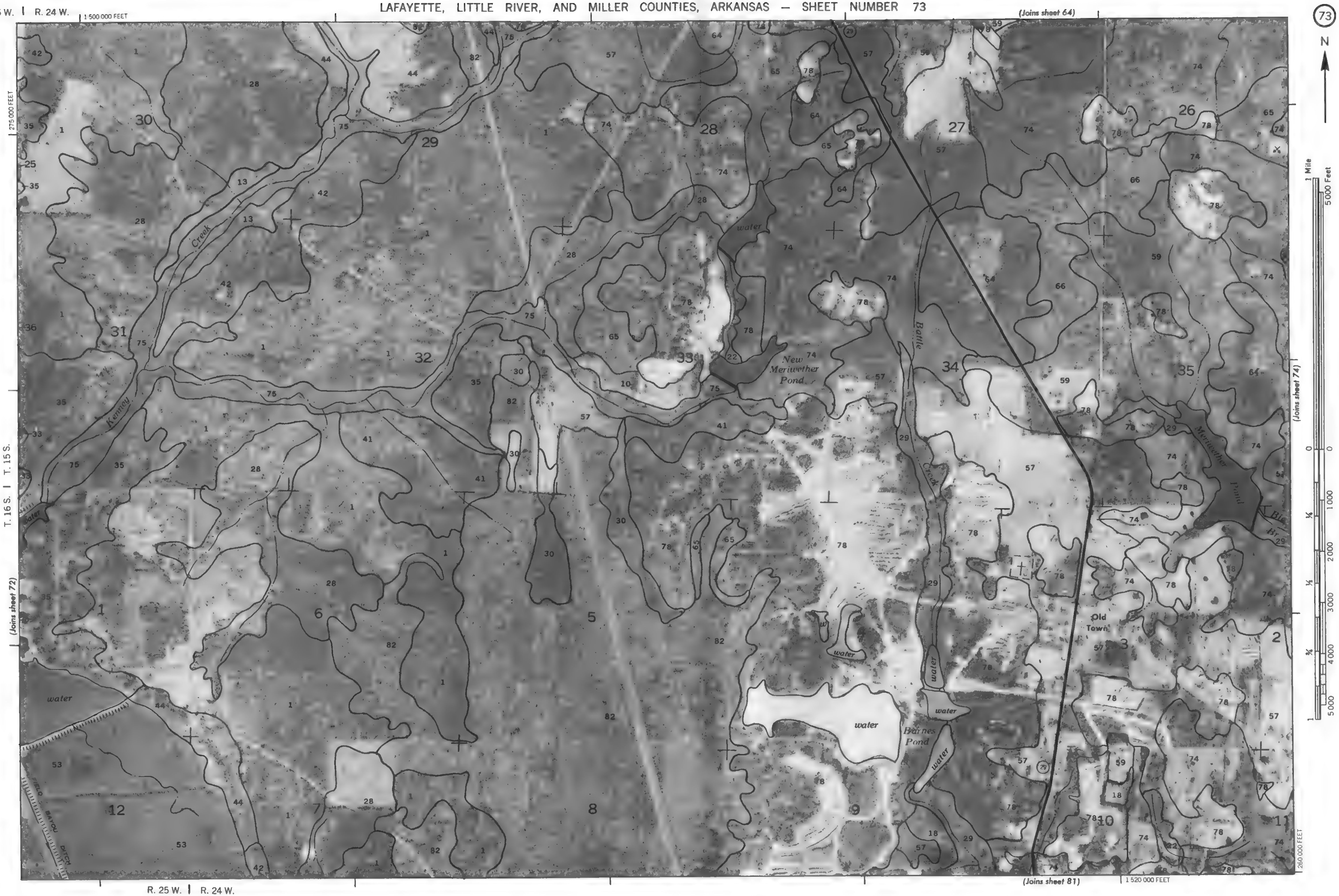


LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 71

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 72


R. 25 W. | R. 24 W.
1 500 000 FEET
(Joins sheet 64)
73
N
275 000 FEET
T. 15 S.
T. 16 S.
(Joins sheet 72)
(Joins sheet 74)
Kenney Creek
New Meriwether Pond
Meriwether Pond
Battle Creek
Barnes Pond
Old Town
water
1 Mile
5000 Feet
(Joins sheet 81)
1 520 000 FEET
260 000 FEET

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 74

(Joins sheet 66)

(Joins sheet 74)

(Joins inset, sheet 67)

(Joins sheet 83)

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

76

(Joins sheet 68)

R. 28 W.

1 400 000 FEET

T. 16 S.

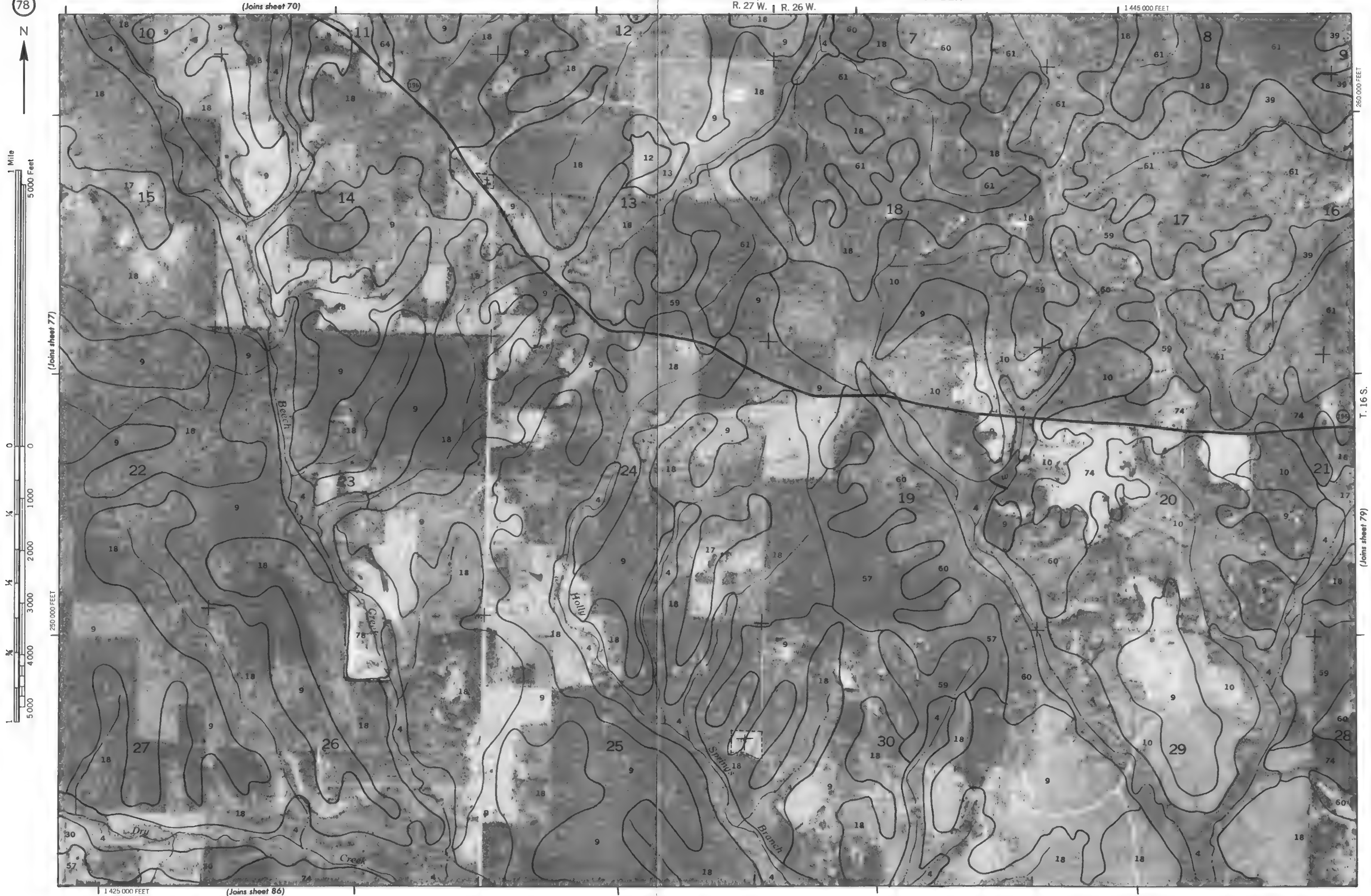
(Joins sheet 77)

(Joins sheet 84)

1 380 000 FEET

This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 79

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 80

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, AND MILLER COUNTIES, ARKANSAS — SHEET NUMBER 82

This map is compiled on 1974 aerial photography by the U S Department of Agriculture Soil Conservation Service and cooperating agencies
Coordinate grid ticks and land division corners if shown, are approximately positioned

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 82

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

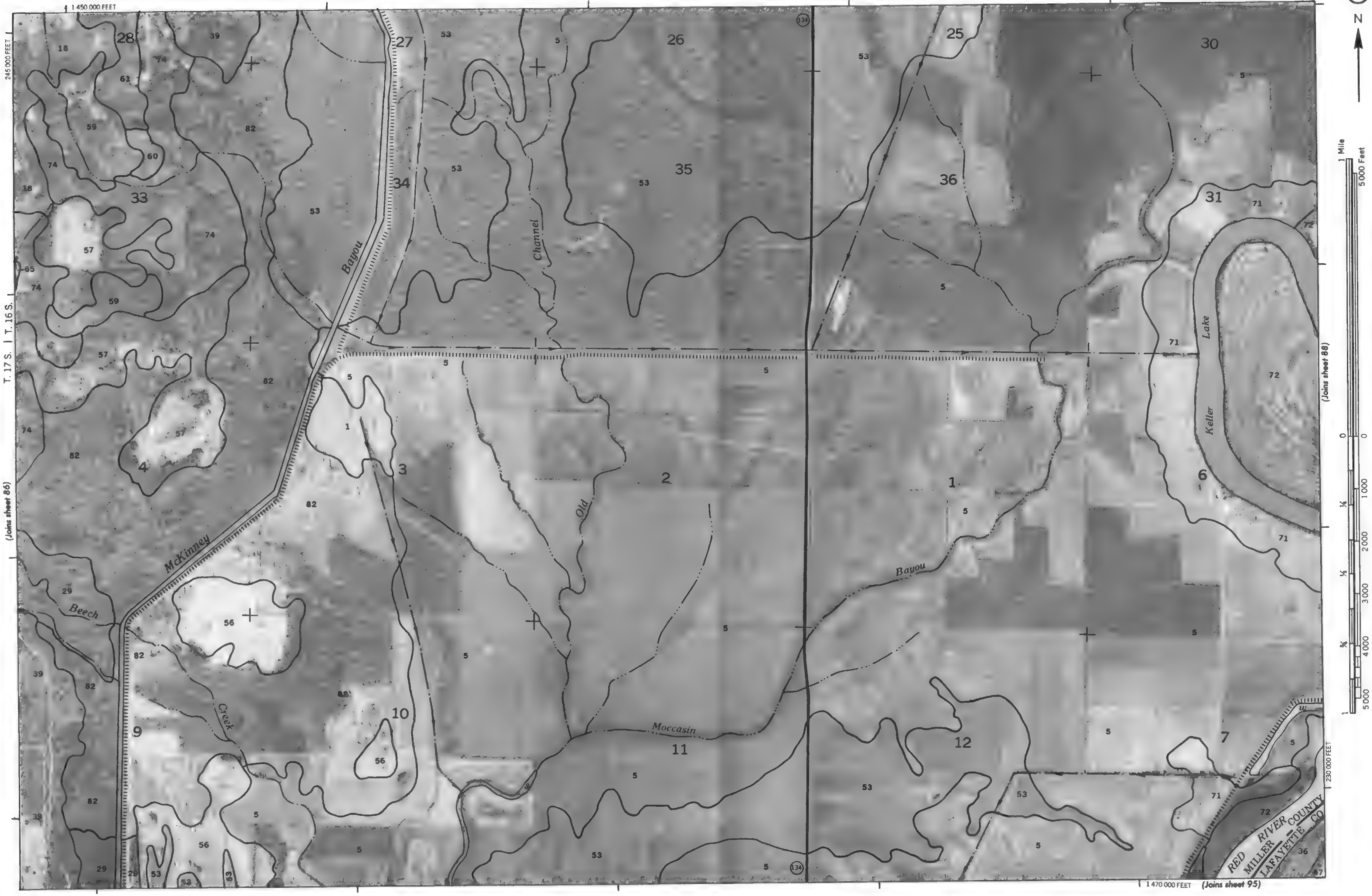
This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 85

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 86



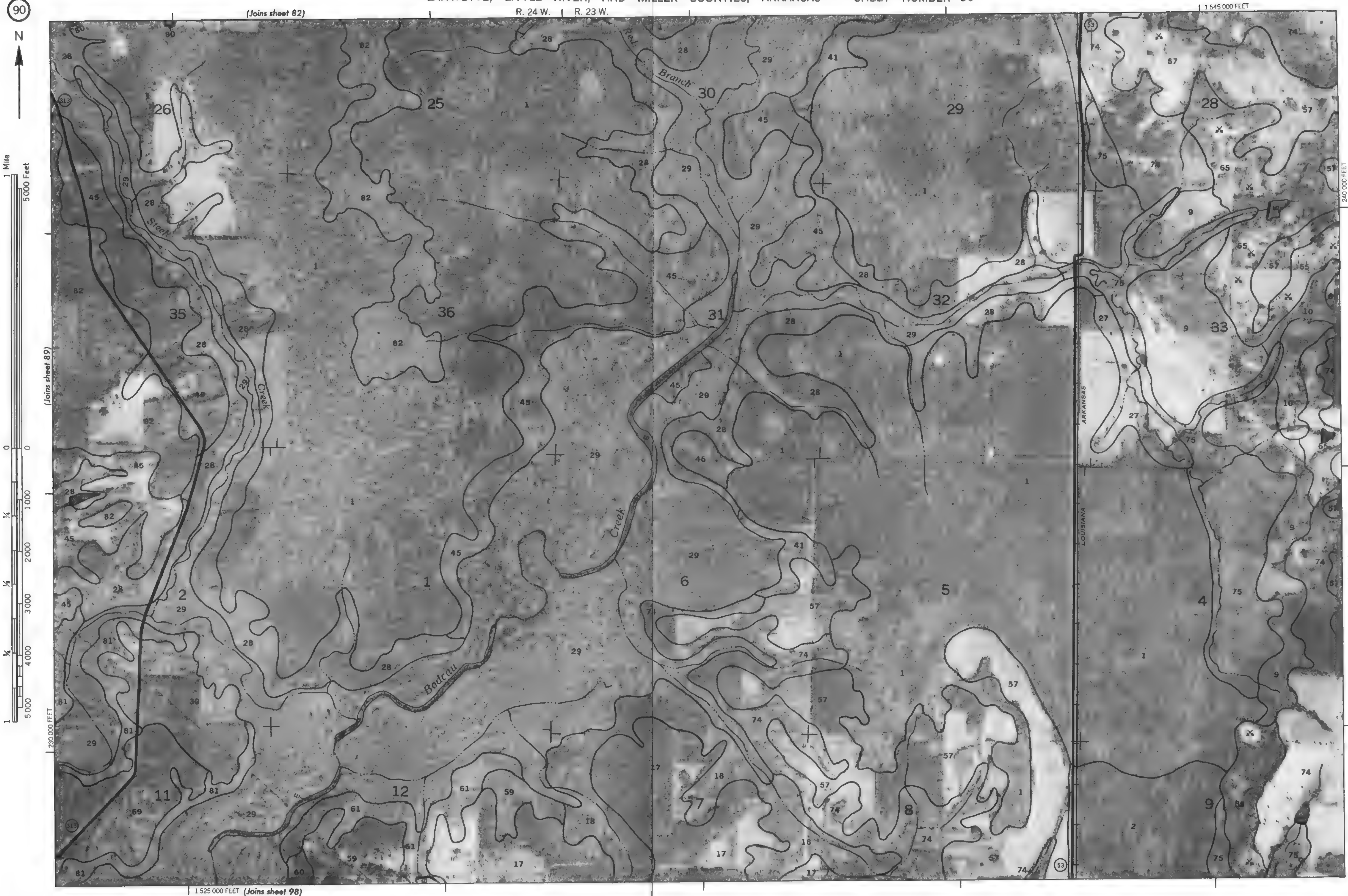
LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 87

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

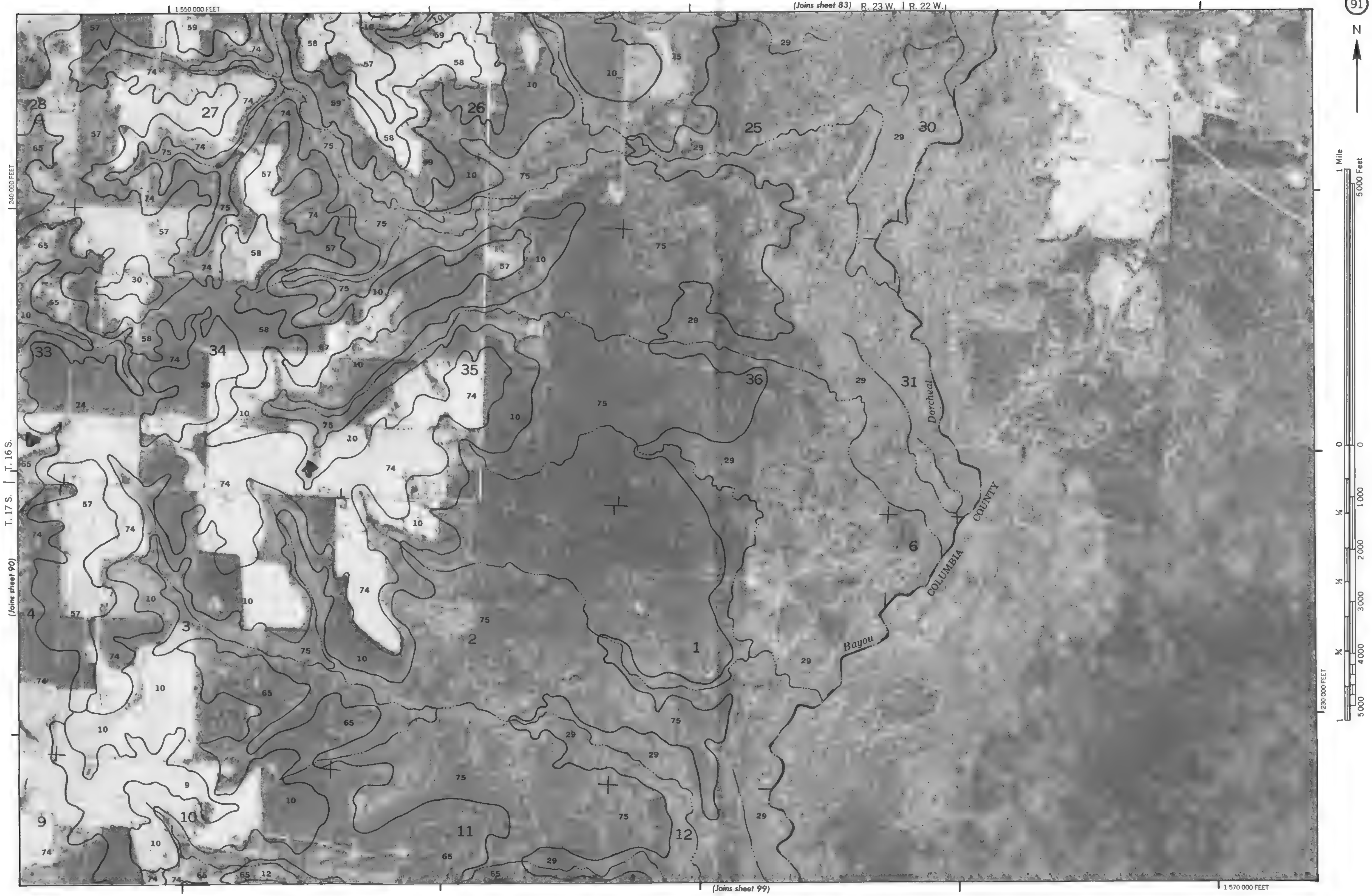
This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 88

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



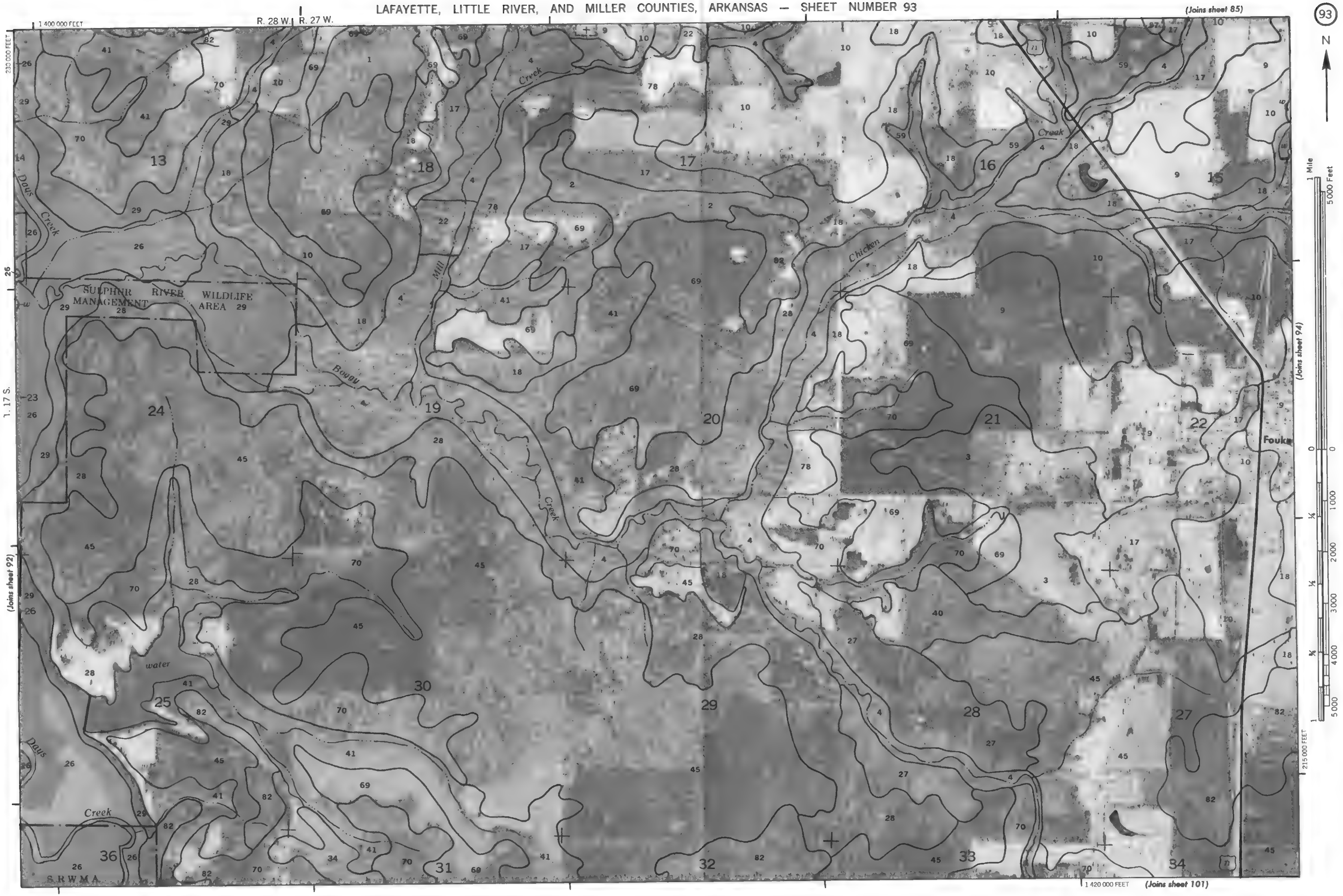
This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



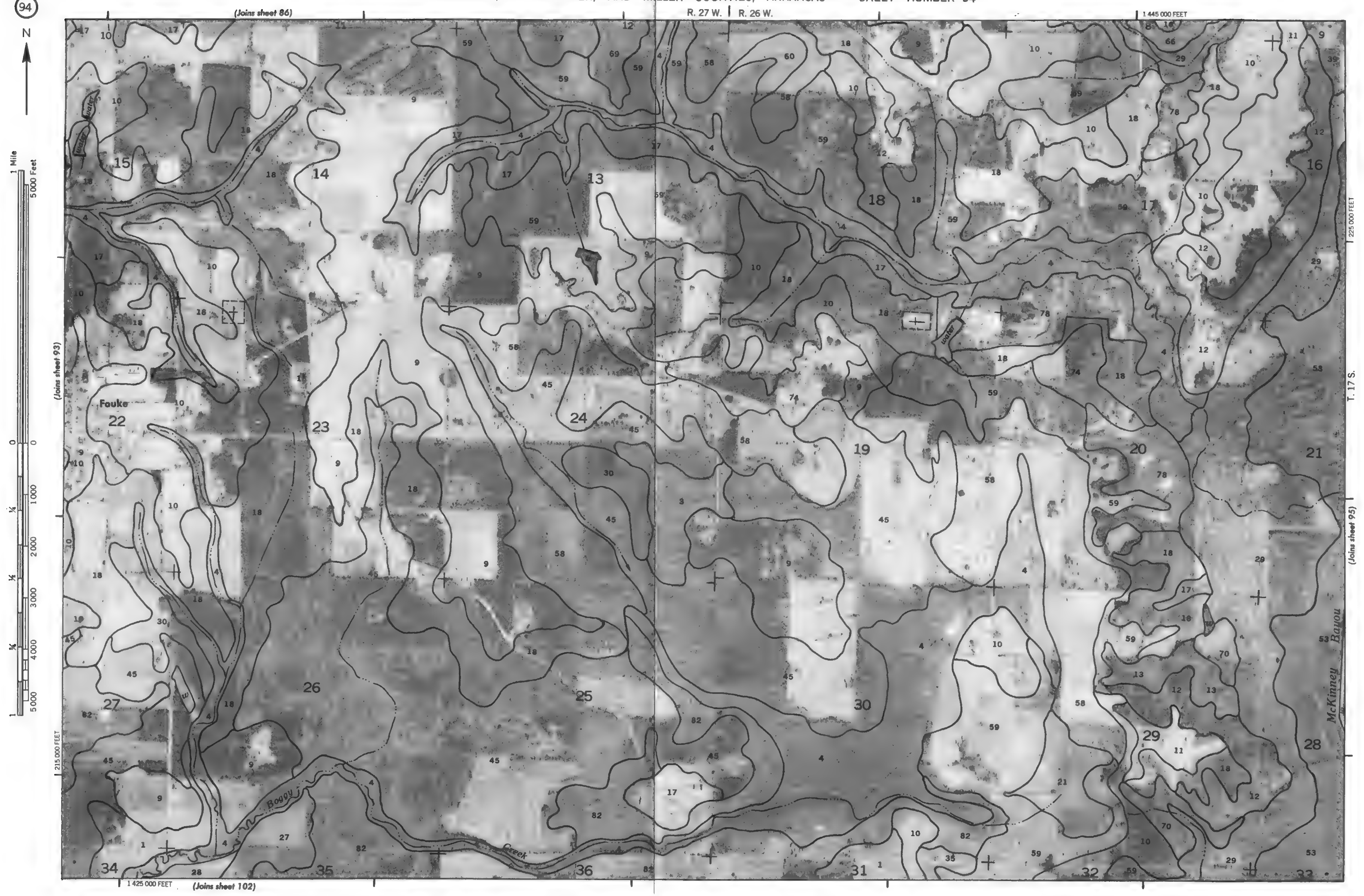
LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 91

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

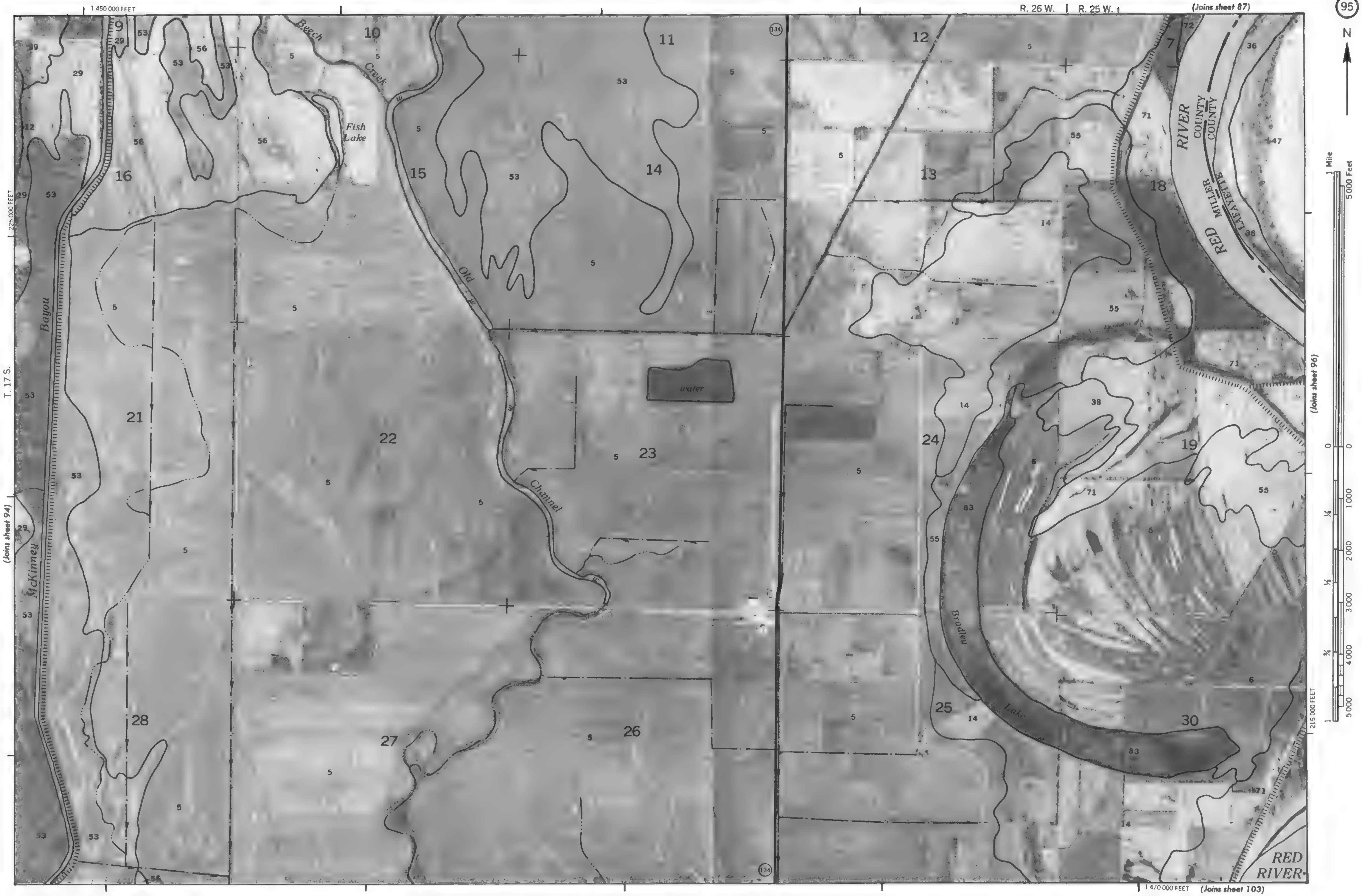


This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



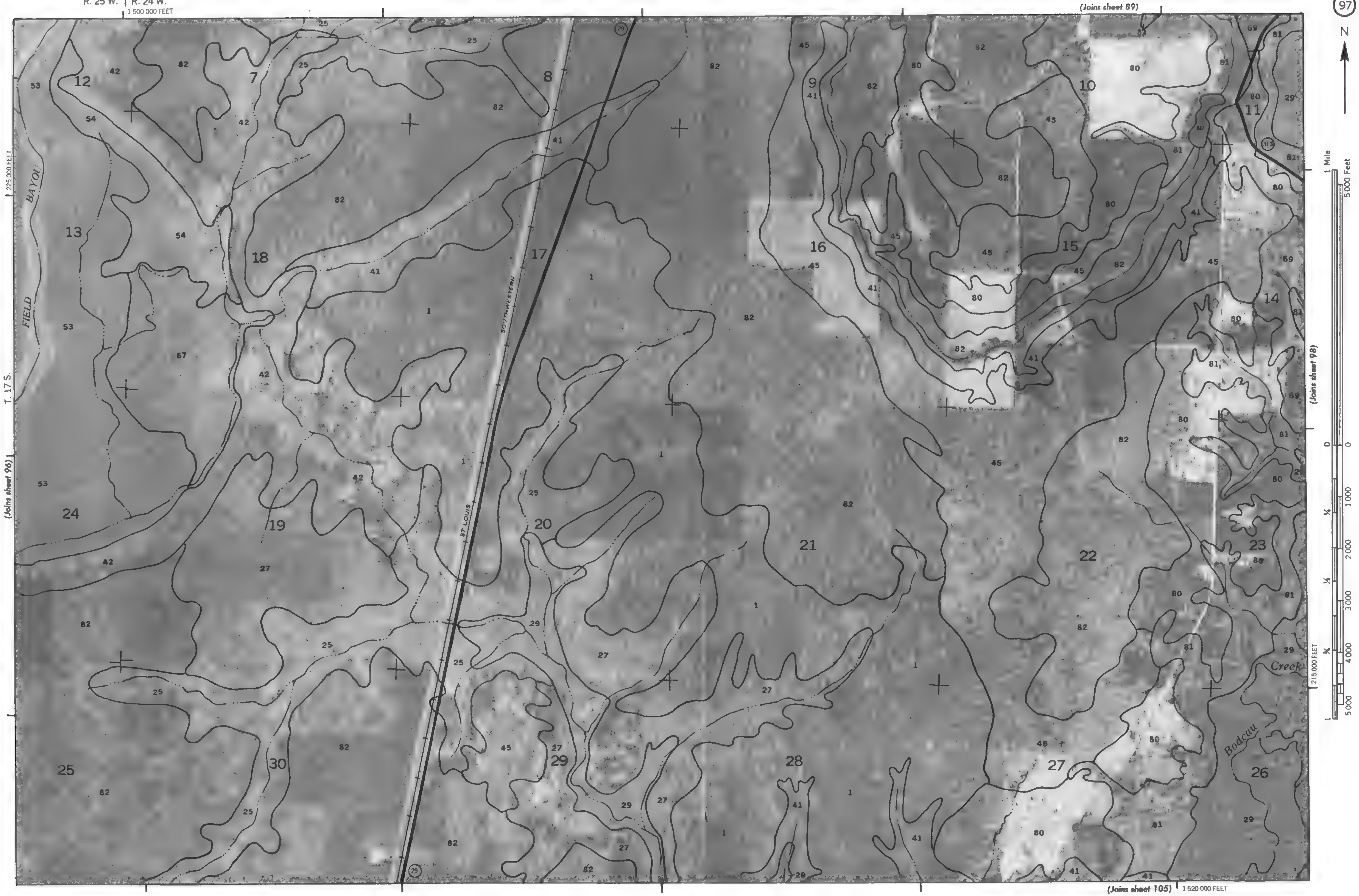
This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 94


95
N
1 450 000 FEET
R. 26 W.
R. 25 W.
(Joins sheet 87)
(Joins sheet 94)
(Joins sheet 96)
(Joins sheet 103)
225 000 FEET
215 000 FEET
1 470 000 FEET
T. 17 S.
Beech Creek
Fish Lake
Old Channel
McKinney Bayou
water
Bradley Lake
RED RIVER
MILLER COUNTY
LAFAYETTE COUNTY
134
1 Mile
5000 Feet
0
1000
2000
3000
4000
5000
¼
½
¾
1
9 10 11 12 13 14 15 16 18 19 21 22 23 24 25 26 27 28 30
5 6 7 12 14 29 36 38 39 47 53 55 56 71 72 83

This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 96



LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 97

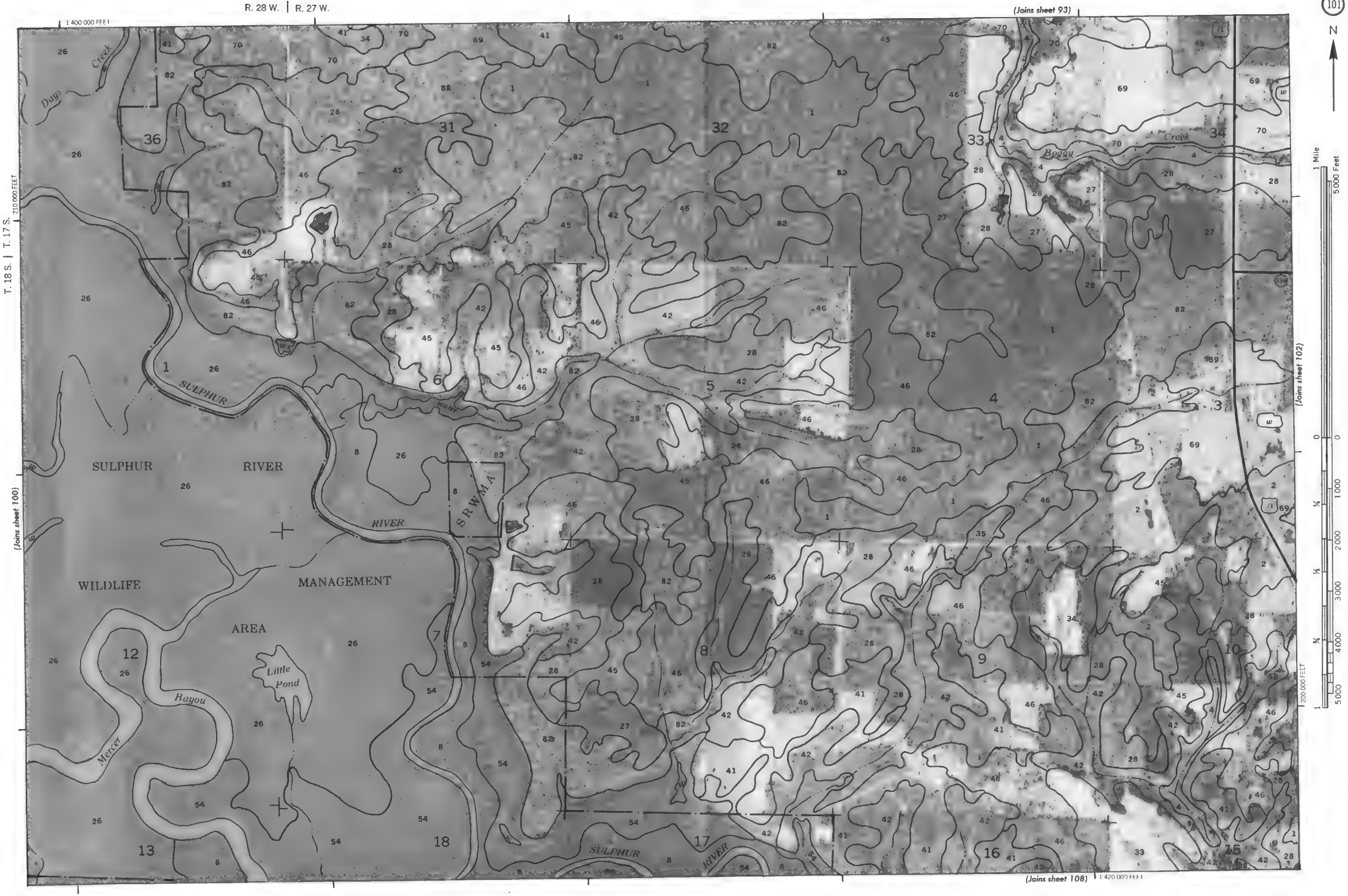
This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 99

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.


100
N
R. 28 W.
1 395 000 FEET
(Joins sheet 92)
SULPHUR RIVER
WILDLIFE
MANAGEMENT
AREA
SULPHUR R
SULPHUR
RIVER
Days Cr
water
SULPHUR
RIVER
WILDLIFE
MANAGEMENT
AREA
Mercer
Bayou
Turkey
Creek
CASS COUNTY
TEXAS
210 000 FEET
T. 18 S. | T. 17 S.
(Joins sheet 101)
200 000 FEET
1 375 000 FEET
(Joins sheet 107)
1 Mile
5000 Feet



This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

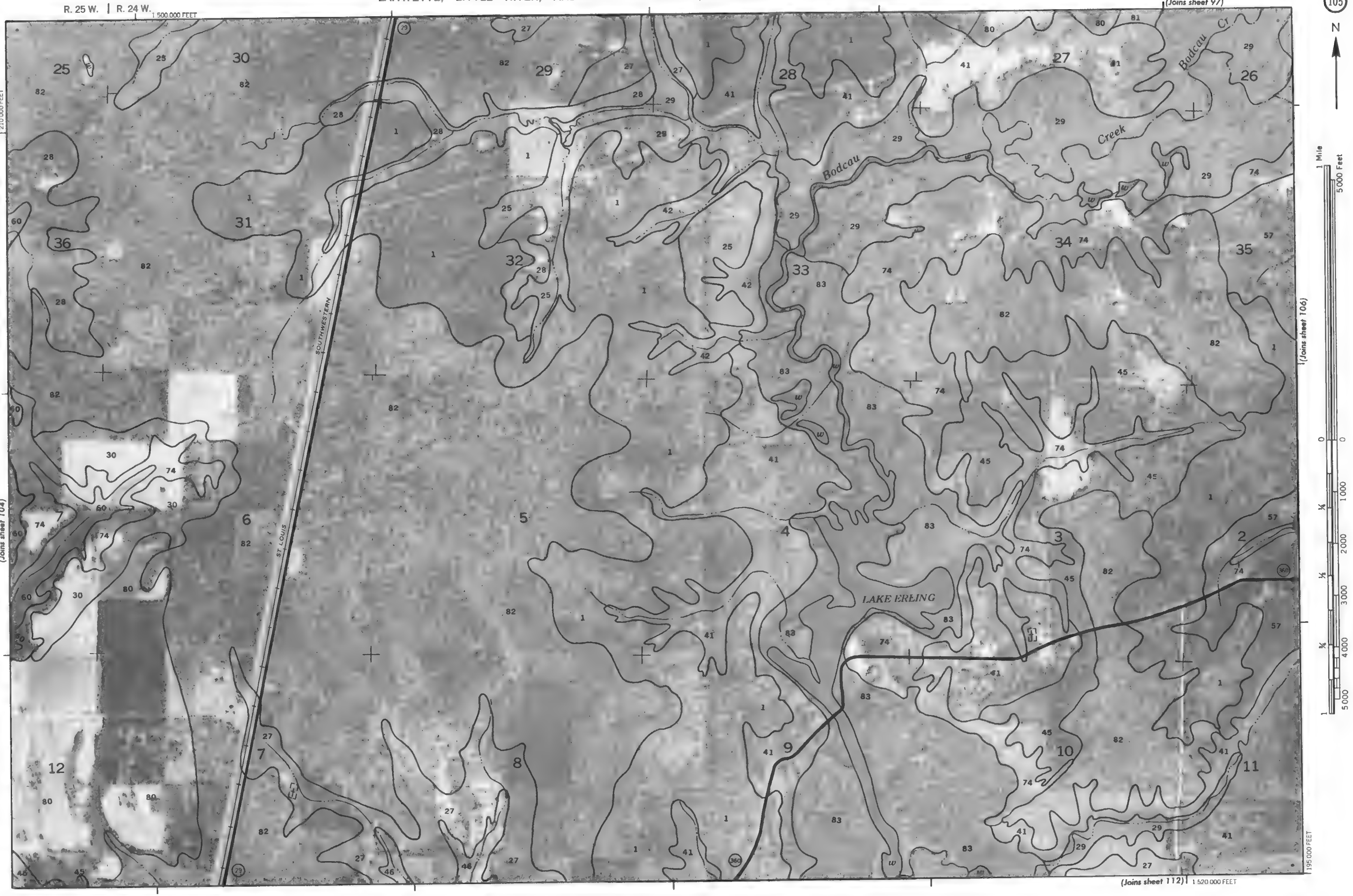
LAFAYETTE, LITTLE RIVER, AND MILLER COUNTIES, ARKANSAS — SHEET NUMBER 102

This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAFAYETTE, LITTLE RIVER, MILLER COUNTIES, ARKANSAS NO. 102

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

106

LAFAYETTE, LITTLE RIVER, AND MILLER COUNTIES, ARKANSAS — SHEET NUMBER 106

N

1 Mile
5000 Feet
0 0
¼ 1000
2000
½
3000
¾ 4000
1 5000

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

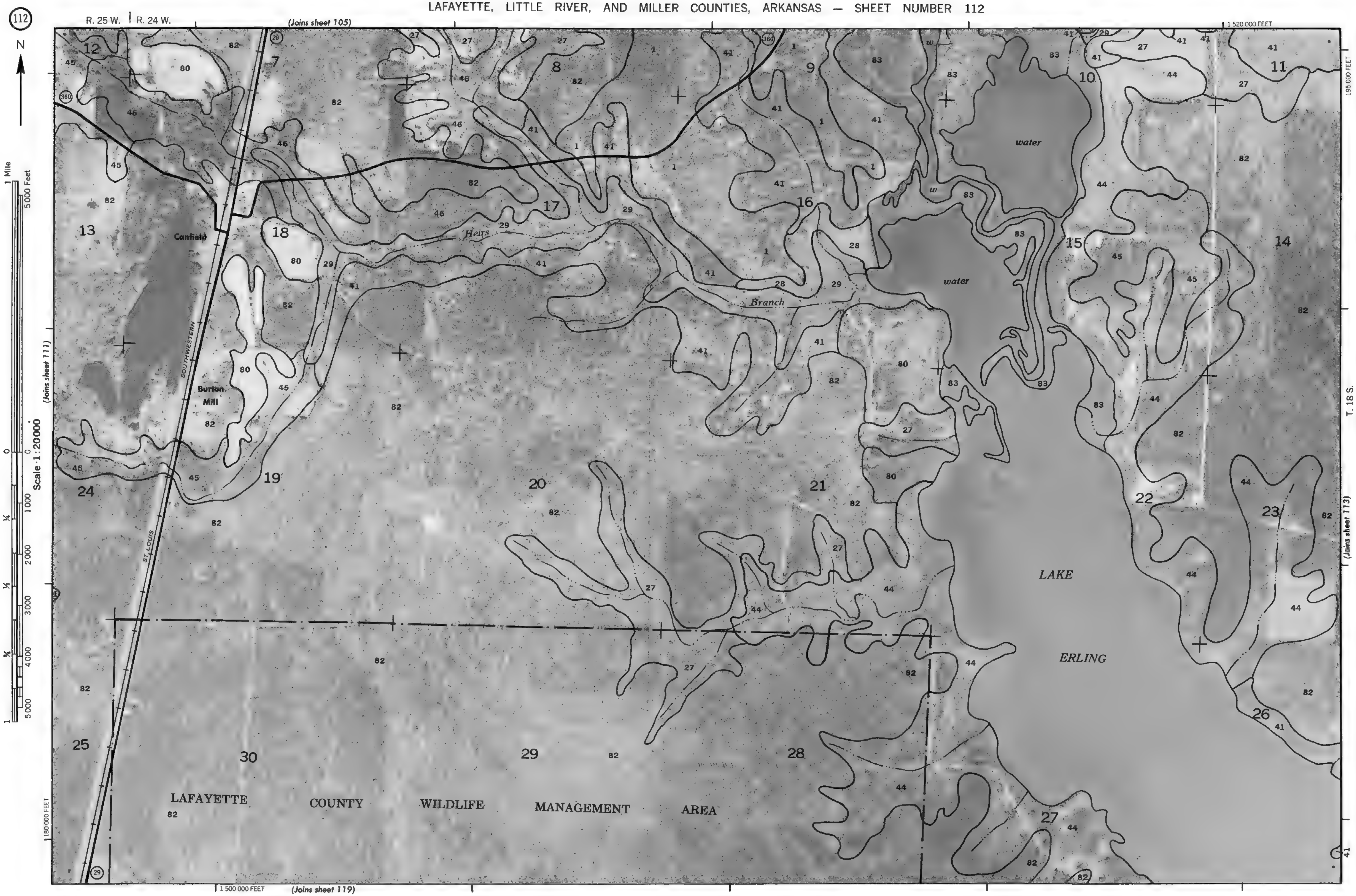
This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This map is compiled on 1974 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

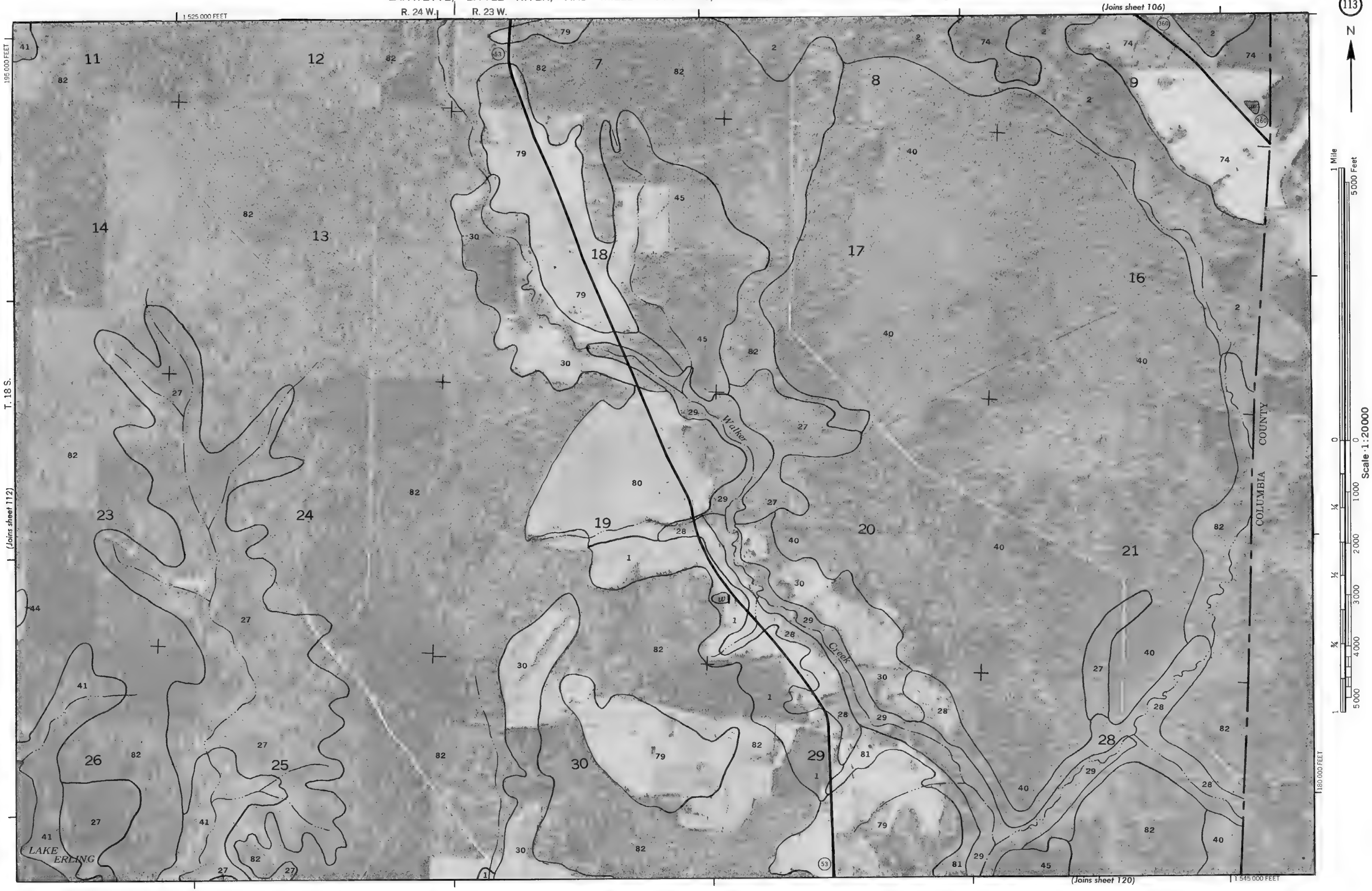

109
1 425 000 FEET
R. 27 W. | R. 26 W.
(Joins sheet 102)
195 000 FEET
T. 18 S.
(Joins sheet 108)
(Joins sheet 110)
(Joins sheet 116)
1 445 000 FEET
185 000 FEET
N
Fort Lynn
Bayou
McKinney
Creek
Prairie
Old
Channel
Sulphur
River
RED RIVER
RED
RIVER
MILLER COUNTY
LAFAYETTE COUNTY
water
1 Mile
5000 Feet
Scale 1:20000

LAFAYETTE, LITTLE RIVER, AND MILLER COUNTIES, ARKANSAS — SHEET NUMBER 110

111
N
(Joins sheet 104)
(Joins sheet 110)
(Joins sheet 112)
(Joins sheet 118)
1 475 000 FEET
1 495 000 FEET
195 000 FEET
180 000 FEET
R. 25 W.
T. 18 S.
Manatee Bayou
Posten Bayou
water
Scale 1:20000
1 Mile
5000 Feet


112
N
R. 25 W.
R. 24 W.
(Joins sheet 105)
1 520 000 FEET
195 000 FEET
(Joins sheet 111)
(Joins sheet 113)
T. 18 S.
180 000 FEET
1 500 000 FEET
(Joins sheet 119)
Scale 1:20000
1 Mile
5000 Feet
Canfield
Burton Mill
SOUTHWESTERN
ST. LOUIS
Heirs
Branch
water
LAKE
ERLING
LAFAYETTE
COUNTY
WILDLIFE
MANAGEMENT
AREA

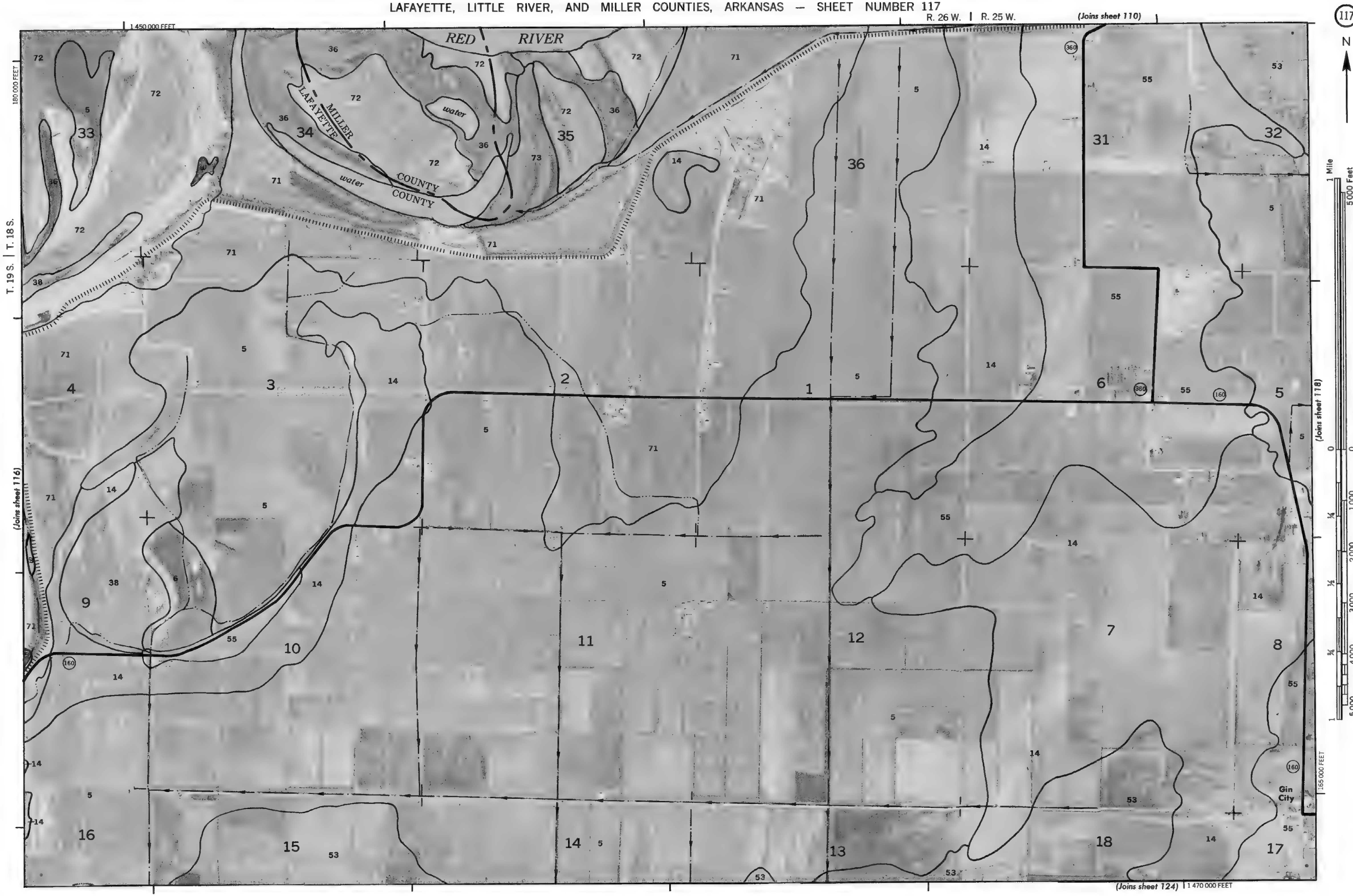
LAFAYETTE, LITTLE RIVER, AND MILLER COUNTIES, ARKANSAS — SHEET NUMBER 113



LAFAYETTE, LITTLE RIVER, AND MILLER COUNTIES, ARKANSAS — SHEET NUMBER 114

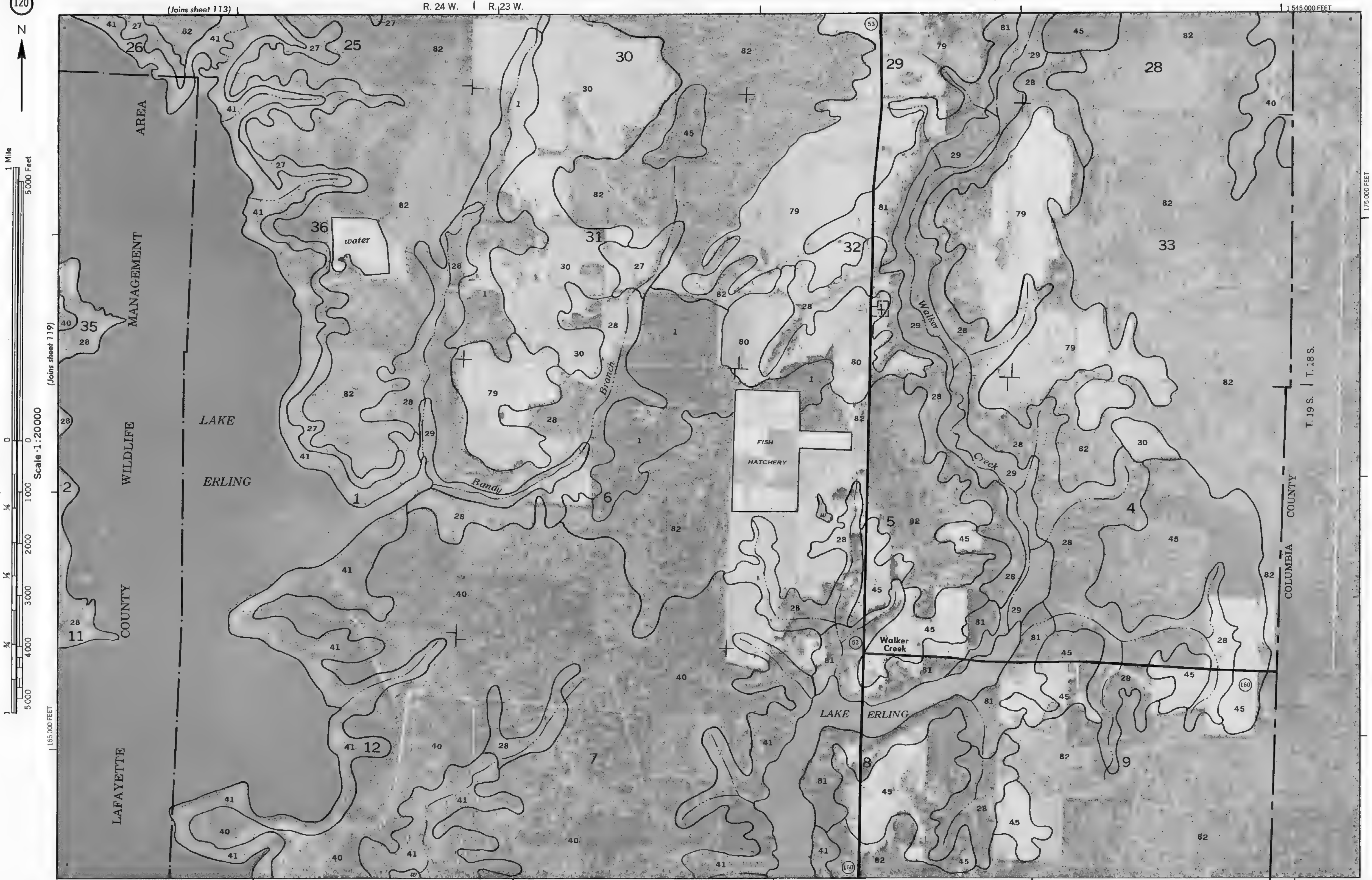

115
N
(Joins sheet 108)
(Joins sheet 114)
(Joins sheet 116)
(Joins sheet 122)
1 400 000 FEET
1 420 000 FEET
180 000 FEET
165 000 FEET
R. 28 W.
R. 27 W.
T. 18 S.
T. 19 S.
SULPHUR RIVER
WILDLIFE MANAGEMENT
AREA
WILDLIFE MANAGEMENT AREA BOUNDARY
Mercer Lake
SULPHUR RIVER
Black Diamond
Kennedy Lake
East Fork
Kelly Bayou
water
1 Mile
5000 Feet
Scale 1:20000

LAFAYETTE, LITTLE RIVER, AND MILLER COUNTIES, ARKANSAS — SHEET NUMBER 116


117
N
(Joins sheet 110)
R. 26 W. | R. 25 W.
1 450 000 FEET
180 000 FEET
T. 19 S. | T. 18 S.
RED RIVER
MILLER COUNTY
LAFAYETTE COUNTY
water
(Joins sheet 116)
(Joins sheet 118)
(Joins sheet 124)
1 470 000 FEET
165 000 FEET
Gin City
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
1


118
N
(Joins sheet 111)
R. 25 W.
1 495 000 FEET
(Joins sheet 117)
(Joins sheet 119)
(Joins sheet 125)
1 475 000 FEET
165 000 FEET
175 000 FEET
T. 19 S. | T. 18 S.
Scale 1:20000
1 Mile
5000 Feet
Bayou
Posten
Dooley
Creek
SOUTHWESTERN
ST LOUIS
water
Walnut Hill
Gin City
29
160


R. 25 W.
R. 24 W.
1 500 000 FEET
(Joins sheet 112)
119
N
LAKE ERLING
LAFAYETTE COUNTY WILDLIFE MANAGEMENT AREA
Dooley Creek
ST LOUIS SOUTHWESTERN
T. 19 S.
T. 18 S.
175 000 FEET
(Joins sheet 118)
(Joins sheet 120)
165 000 FEET
(Joins sheet 126)
1 520 000 FEET
Scale 1:20000
1 Mile
5000 Feet


120
N
(Joins sheet 113)
R. 24 W.
R. 23 W.
1 545 000 FEET
175 000 FEET
T. 18 S.
T. 19 S.
(Joins sheet 119)
(Joins sheet 127)
1 525 000 FEET
165 000 FEET
1 Mile
5000 Feet
Scale 1:20000
LAFAYETTE COUNTY
WILDLIFE MANAGEMENT AREA
LAKE ERLING
COLUMBIA COUNTY
water
FISH HATCHERY
Bandy Branch
Walker Creek
Walker Creek
LAKE ERLING
53
160


121
N
1 375 000 FEET
R. 28 W.
(Joins sheet 114)
165 000 FEET
(Joins sheet 122)
150 000 FEET
(Joins sheet 128)
1 395 000 FEET
T. 19 S.
TEXAS
CASS COUNTY
State Line
State Line Creek
Southern
Kansas City
Ravana
West Fork
May Branch
Kelly Bayou
Day Branch
Pill Br.
Scale 1:20000
1 Mile
5000 Feet
0
1000
2000
3000
4000
5000
¼
½
¾

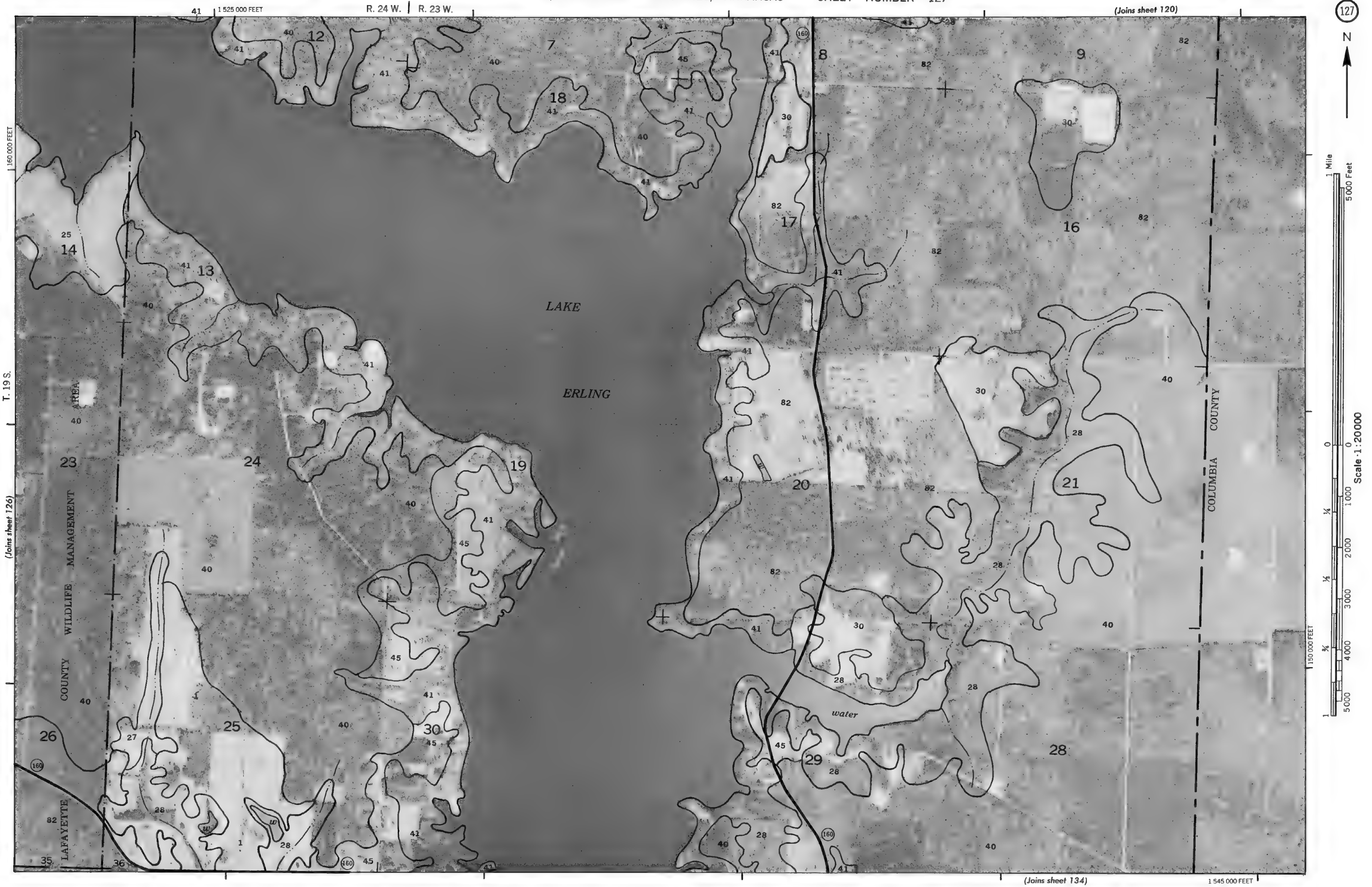

122
N
R. 28 W.
R. 27 W.
(Joins sheet 115)
(Joins sheet 121)
(Joins sheet 123)
(Joins sheet 129)
T. 19 S.
1 420 000 FEET
1 400 000 FEET
160 000 FEET
150 000 FEET
Doddridge
East Fork
Kelly Bayou
West Fork Kelly Bayou
Day Br.
Scale 1:20000
1 Mile
5000 Feet


123
N
1 425 000 FEET
R. 27 W.
R. 26 W.
(Joins sheet 116)
SULPHUR RIVER
water
Blue Hole
water
Spring Bank
MILLER COUNTY
LAFAYETTE COUNTY
RED RIVER
160 000 FEET
T. 19 S.
(Joins sheet 122)
(Joins sheet 124)
Canale
150 000 FEET
(Joins sheet 130)
1 445 000 FEET
1 Mile
5 000 Feet
Scale 1:20000


124
N
(Joins sheet 117)
1 470 000 FEET
(Joins sheet 123)
(Joins sheet 125)
(Joins sheet 131)
1 450 000 FEET
150 000 FEET
160 000 FEET
T. 19 S.
R. 26 W. | R. 25 W.
Scale 1:20000
1 Mile
5000 Feet
0
1000
2000
3000
4000
5000
¼
½
¾
1
water
Dry
Fork
Bayou
Posten
16
15
14
13
18
17
21
22
23
24
19
20
28
27
26
25
30
29
33
34
35
36
31
32
5
53
14
55
56
45
38
71
41

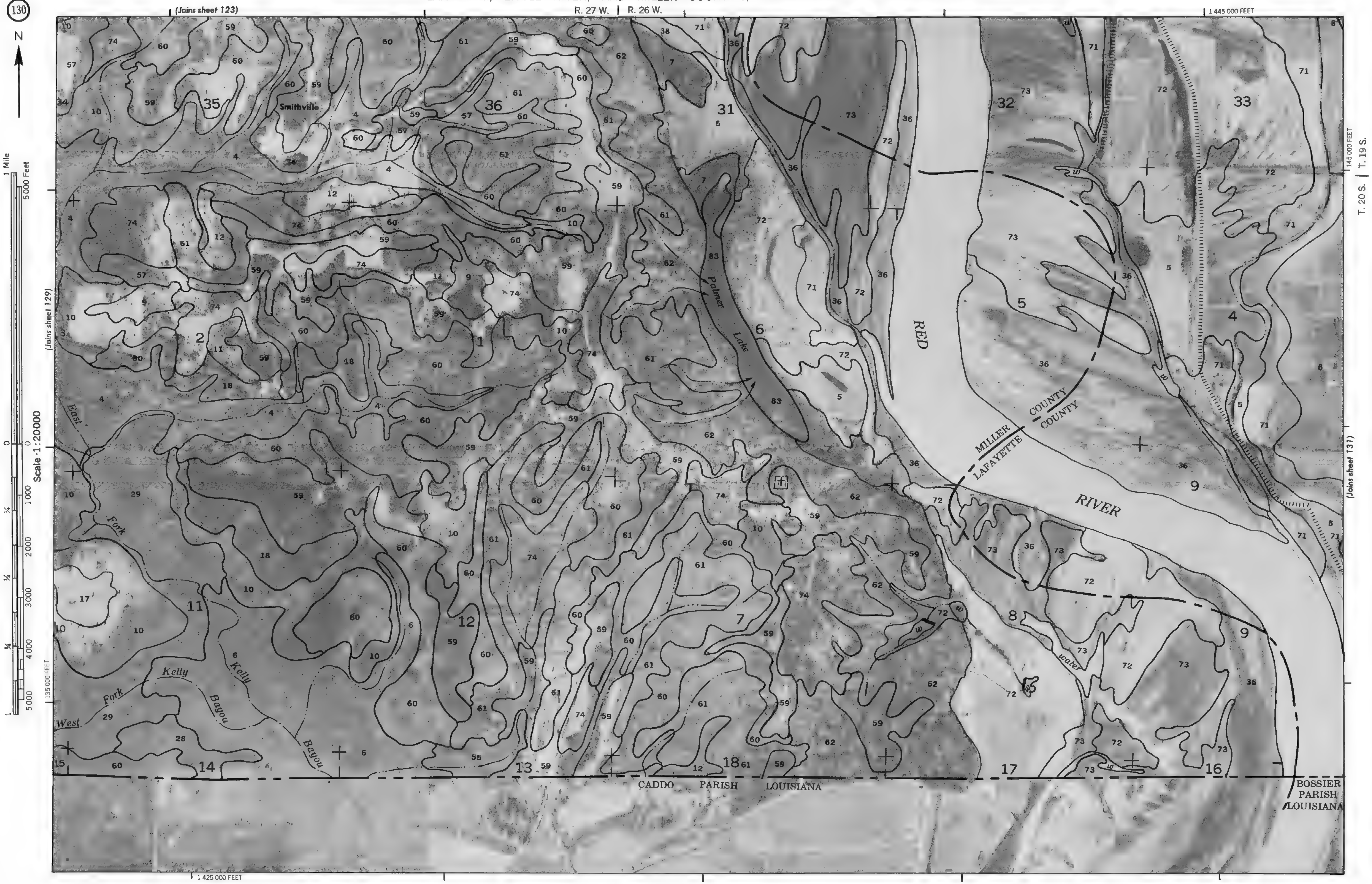

125
N
(Joins sheet 118)
(Joins sheet 124)
(Joins sheet 126)
(Joins sheet 132)
1 475 000 FEET
1 495 000 FEET
160 000 FEET
150 000 FEET
T. 19 S.
R. 25 W. | R. 24 W.
Scale 1:20000
1 Mile
5000 Feet
Bradley
Kizer
Posten
Bayou
Wheeler
Creek
water
SOUTHWESTERN
ST. LOUIS
LAFAYETTE COUNTY WILDLIFE MANAGEMENT AREA
160
29


126
R. 25 W.
R. 24 W.
N
(Joins sheet 119)
(Joins sheet 125)
(Joins sheet 127)
(Joins sheet 133)
1 520 000 FEET
1 500 000 FEET
160 000 FEET
150 000 FEET
T. 19 S.
Scale 1:20000
1 Mile
5000 Feet
LAFAYETTE
COUNTY
WILDLIFE
MANAGEMENT
AREA
LAKE
ERLING
Dooley
Creek
Bear
Creek
160


127
N
(Joins sheet 120)
(Joins sheet 126)
(Joins sheet 134)
1 525 000 FEET
1 545 000 FEET
160 000 FEET
150 000 FEET
R. 24 W.
R. 23 W.
T. 19 S.
LAKE
ERLING
COUNTY WILDLIFE MANAGEMENT AREA
LAFAYETTE
COLUMBIA COUNTY
water
Scale 1:20000
1 Mile
5000 Feet


128
N
(Joins sheet 121)
R. 28 W.
1 395 000 FEET
T. 20 S. | T. 19 S.
145 000 FEET
(Joins sheet 129)
1 Mile
5000 Feet
Scale 1:20000
135 000 FEET
1 375 000 FEET
CASS COUNTY TEXAS
CADDO PARISH LOUISIANA
KANSAS CITY
SOUTHERN
State Line Creek
Capps Branch
Pilt Branch
Hicks Branch
water

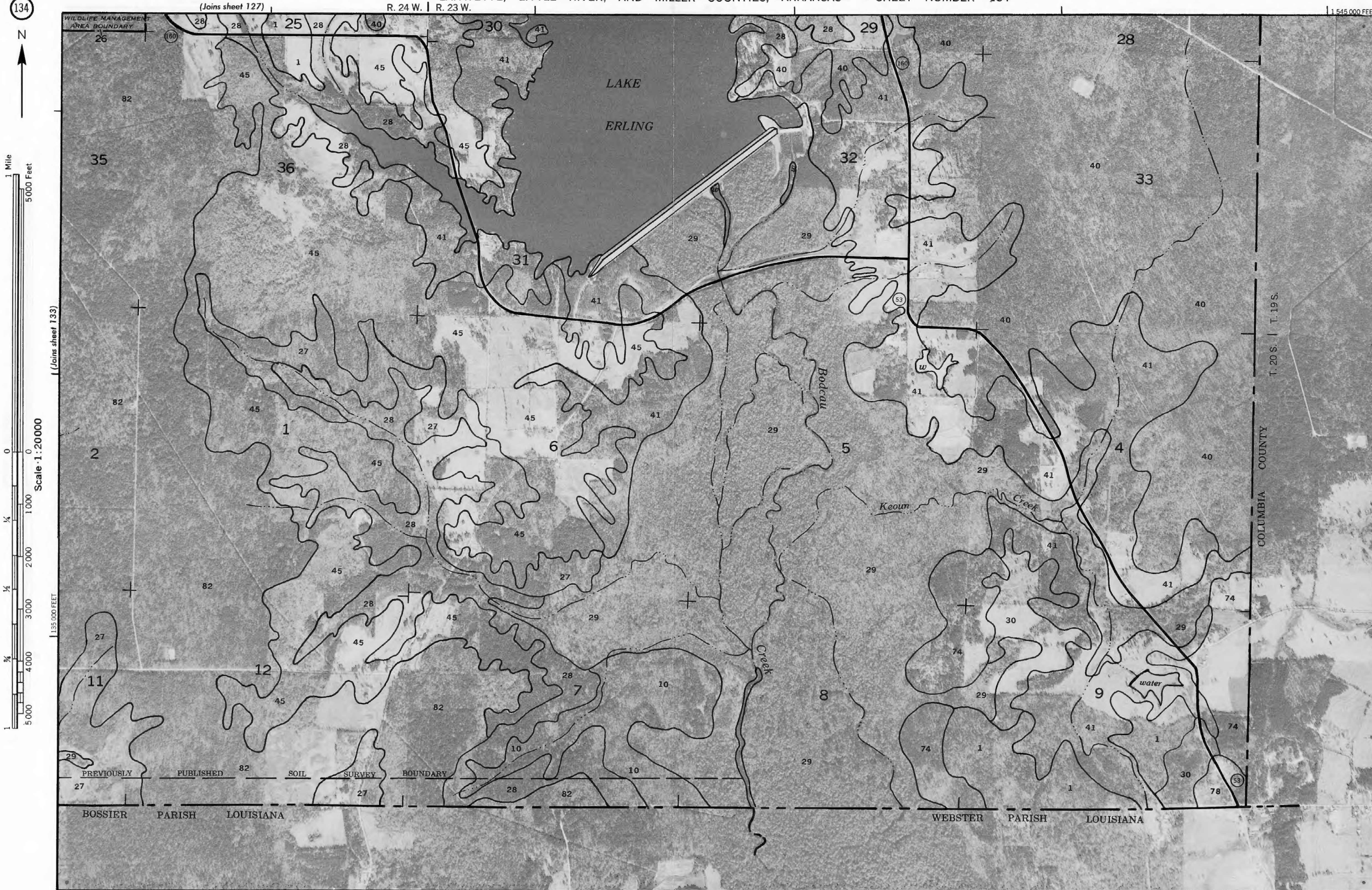

129
N
(Joins sheet 122)
(Joins sheet 128)
(Joins sheet 130)
R. 28 W.
R. 27 W.
T. 19 S.
T. 20 S.
1 400 000 FEET
145 000 FEET
135 000 FEET
1 420 000 FEET
Kiblah
Hicks Branch
West Fork
Kelly Bayou
East Fork Kelly Bayou
water
71
CADDO PARISH LOUISIANA
1 Mile
5 000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000


(Joins sheet 123)
R. 27 W. | R. 26 W.
1 445 000 FEET
N
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
135 000 FEET
145 000 FEET
T. 19 S.
T. 20 S.
(Joins sheet 129)
(Joins sheet 131)
Smithville
Palmer Lake
RED RIVER
MILLER COUNTY
LAFAYETTE COUNTY
East Fork
West Fork
Kelly Bayou
water
CADDO PARISH LOUISIANA
BOSSIER PARISH LOUISIANA
1 425 000 FEET
31
32
33
35
36
1
2
4
5
6
7
8
9
11
12
13
14
16
17
18

LAFAYETTE, LITTLE RIVER, AND MILLER COUNTIES, ARKANSAS — SHEET NUMBER 131


R. 25 W. | R. 24 W.
(Joins sheet 125)
(Joins sheet 131)
(Joins sheet 133)
T. 20 S. | T. 19 S.
N
Scale 1:20000
1 Mile
5000 Feet
1 495 000 FEET
145 000 FEET
135 000 FEET
1 475 000 FEET
Enyart Lake
Wheeler Creek
Cornish Br.
Martin Cr.
ST. LOUIS SOUTHWESTERN
BOSSIER PARISH
LOUISIANA
PREVIOUSLY PUBLISHED SOIL SURVEY BOUNDARY


133
N
1 500 000 FEET
R. 24 W.
(Joins sheet 126)
WILDLIFE MANAGEMENT AREA BOUNDARY
145 000 FEET
T. 20 S. | T. 19 S.
(Joins sheet 132)
(Joins sheet 134)
135 000 FEET
1 520 000 FEET
Bear Creek
Dooley Creek
Martin Creek
PREVIOUSLY PUBLISHED SOIL SURVEY BOUNDARY
BOSSIER PARISH LOUISIANA
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000


N
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
(Joins sheet 127)
(Joins sheet 133)
R. 24 W.
R. 23 W.
T. 20 S.
T. 19 S.
1 545 000 FEET
145 000 FEET
135 000 FEET
1 525 000 FEET
WILDLIFE MANAGEMENT AREA BOUNDARY
LAKE ERLING
Bodcau
Creek
Keoun Creek
water
w
COLUMBIA COUNTY
PREVIOUSLY PUBLISHED SOIL SURVEY BOUNDARY
BOSSIER PARISH LOUISIANA
WEBSTER PARISH LOUISIANA
160
53